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UME 2 AUGUST, 1905 NUMBER 1

NORTHWESTERN UNIVERSITY

CHICAGO—EVANSTON

QUARTERLY BULLETIN

OF THE

DENTAL SCHOOL

OFFICE OF PUBLICATION
NORTHWESTERN UNIVERSITY BUILDING
LAKE AND DEARBORN STREETS CHICAGO

PUBLISHED QUARTERLY BY
NORTHWESTERN UNIVERSITY

Entered August 4, 1904, at Chicago, Illinois, as second-class matter, under Act of Congress of July 16, 1894

NORTHWESTERN UNIVERSITY.

EVANSTON-CHICAGO.

The University comprises the following departments of instruction, each having a distinct faculty:

The College of Liberal Arts, in Evanston,
Founded in 1851; opened in 1855.
The Medical School, in Chicago,
Founded in 1859.
The Law School, in Chicago,
Founded in 1859.
The School of Pharmacy, in Chicago,
Founded in 1886.
The Dental School, in Chicago,
Founded in 1887.
The School of Music, in Evanston,
Organized in 1895.

The following non-degree-conferring departments are maintained by the University:

The Academy, at Evanston,
Founded in 1851; opened in 1855.
Grand Prairie Seminary, at Onarga, Ill.,
Founded in 1863.
The Elgin Academy, at Elgin, Ill.,
Chartered in 1839; opened in 1856.

Garrett Biblical Institute, a theological school authorized by its charter to confer degrees in divinity, established on its own foundation and under separate management. The buildings of the Institute are on the University Campus, in Evanston, and the school is in close coöperation with the University.

The Norwegian-Danish Theological School in Evanston is affiliated with the Institute.

The Swedish Theological Seminary is an independent school located on the University Campus, in Evanston.

The Comnock School of Oratory is conducted on the University Campus, in Evanston.

The Interstate School of Correspondence in Chicago is affiliated with the University, its certificates in academic courses being accepted at their face value toward meeting the entrance requirements in any department.

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The Evanston Index Co., Printers, Evanston, Ill.

1905

JANUARY.

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JANUARY.

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NORTHWESTERN UNIVERSITY BUILDING.
Southeast Corner of Lake and Dearborn Streets, Chicago.

NORTHWESTERN UNIVERSITY DENTAL SCHOOL.

FACULTY.

THOMAS F. HOLGATE, PH. D., *Acting President of the University.*

GREENE VARDIMAN BLACK, M.D., D.D.S., SC.D., LL.D., *Dean, Professor of Operative Dentistry, Pathology and Bacteriology.*

THOMAS LEWIS GILMER, M.D., D.D.S., *Professor of Oral Surgery.*

ELGIN MAWHINNEY, D.D.S., *Professor of Special Pathology, Materia Medica and Therapeutics.*

EDMUND NOYES, D.D.S., *Professor of Dental Jurisprudence and Ethics*

JAMES HARRISON PROTHERO, D.D.S., *Professor of Prosthetic Technics, Prosthetic Dentistry and Metallography.*

FREDERICK BOGUE NOYES, B.A., D.D.S., *Professor of Histology.*

TWING BROOKS WIGGIN, M.D., *Professor of Physiology and Pathology.*

VERNON JAMES HALL, PH.D., *Professor of Chemistry.*

GEORGE A. DORSEY, PH. D., *Professor of Comparative Anatomy.*

CHARLES LEWIS MIX, A.M., M.D., *Professor of Anatomy.*

CHARLES R. E. KOCH, D.D.S., *Secretary of the School, and Lecturer on Dental Economics.*

IRA BENSON SELLERY, D.D.S., *Associate Professor of Orthodontia.*

ARTHUR DAVENPORT BLACK, B.S., M.D., D.D.S., *Assistant Professor of Operative Dentistry and Assistant in Oral Surgery.*

EUGENE S. WILLARD, D.D.S., *Assistant Professor of Operative Dentistry and Bacteriology.*

FRED WILLIAM GETHRO, D.D.S., *Assistant Professor of Operative Dentistry and Dental Anatomy.*

SHERMAN E. WRIGHT, M.D., *Lecturer on Anesthesia and Assistant in Oral Surgery.*

DENTAL SCHOOL.

Demonstrators and Quiz Masters, 1904-5.

Baker, Charles Reeder, D.D.S.
Beckett, John Marcus, D.D.S.
Blake, William Earl, D.D.S.
Bonthius, Frederick Albert, M.D.
Clark, Henry Bannister, D.D.S.
Converse, Charles Henry, D.D.S.
Crossley, Elijah Rockhold, B.S., M.D.
Gilchrist, Mont Rankin, D.D.S.
Gilchrist, Harry Alexander, D.D.S.
Hamilton, Baker Aaron, D.D.S.
Hooey, Leslie E. A., D.D.S.
Hospers, John Henry, A.B., D.D.S.
Laughlin, James Rowland, D.D.S
Methven, Huston French, D.D.S.
Poundstone, George Corwin, D.D.S.
Printz, Merle Mayo, D.D.S.
Reichert, Charles Scott, D.D.S.
Sauer, Raymond Julius, D.D.S.
Stevens, Wirt Allen, D.D.S.
Thompson, George Patterson, D.D.S.
Van Tuyl, Harry Isaac, A.B., M.D., D.D.S.

Special Demonstrators.

Birkland, James William, D.D.S.
MacFarlane, George Buchanan, D.D.S.

Superintendent Prosthetic Laboratory.

Waldberg, Benjamin, D.D.S.

Assistant in Oral Surgery.

Miss Mattie Karn Wyman.

Librarian.

Miss Kotzie Willard

DENTAL SCHOOL.

NORTHWESTERN UNIVERSITY DENTAL SCHOOL was founded and is maintained by the University for the purpose of preparing young men and women in the most thorough manner for the practice of dentistry, and for the promotion of dental science and literature. No expense has been spared in its equipment or in the employment of an adequate faculty of skilled teachers, with a large force of demonstrators and assistants.

THE BUILDING.

The University Building has been fitted for the uses of the Dental School, the Law School and the Pharmacy School, at a cost approximating eight hundred thousand dollars. It also accommodates the city offices of the University and supply houses for the accommodation of students of the Dental School. This building is situated at the corner of Dearborn and Lake Streets, and is especially convenient to reach from all lines of travel, both suburban and general. It is located in the business center of Chicago, within the loup of the elevated roads, and the transportation center of three millions of people within a radius of fifty miles. The residence district on the north side is within easy walking distance, so that students are enabled to reside conveniently to the school, but no matter what part of the city or its suburbs they may choose for their abode, the transportation facilities are such as to make it convenient.

The building has a frontage of 180 feet on Dearborn Street and 160 feet on Lake Street. It has an inner court for light 90 by 60 feet, which makes the light from the court side of the rooms equal to that from the street side. It is six stories high and substantially and elegantly built. The Dental School occupies the fifth, sixth and mezzanine floors, and a part of the second floor. The different schools in this building are entirely separate from each other and as distinct as if they were in different buildings, each occupying its own special space. There is also in this building a hall, on the second floor, available for University gatherings of various sorts. The proper entrance to the Dental School is by way of Lake Street and elevators to the sixth floor. Upon reaching this floor by elevator, one enters a large corridor and turns to the left into the great clinic room, in which a space is set apart as the WAITING ROOM FOR PATIENTS AND VISITORS. Immediately adjacent to this are the secretary's office, the book-keeping department and the examiners' room, all of which are of easy access for patients, visitors and those who may

have business with the school. All of these open into the great clinic room. At the opposite end of the room are the Dean's office and the office for the distribution of material to students. This clinic is 142 feet long by 46 feet in width. The ceiling is of an arch form and rises 24 feet from the floor. It is lighted by great windows on two sides and by a skylight running the entire length of the room. Suitable electric lights are arranged for dark afternoons. This room accommodates the operative clinic. It is furnished with 130 dental chairs, each of which has a fountain cuspidor and other similar fixtures attached, making the equip-

ENTRANCE AND ROTUNDA,
Northwestern University Building.

ment complete in every detail. For accommodation of students' lockers, the space over the waiting room and business office at the north end and also the space over the Dean's office and the material office at the south end are converted into galleries. These galleries are easily reached by stairways directly from the clinic room, and communicate with the mezzanine floor, from which the students enter the lecture rooms.

IN THE GREAT OPERATIVE CLINIC.

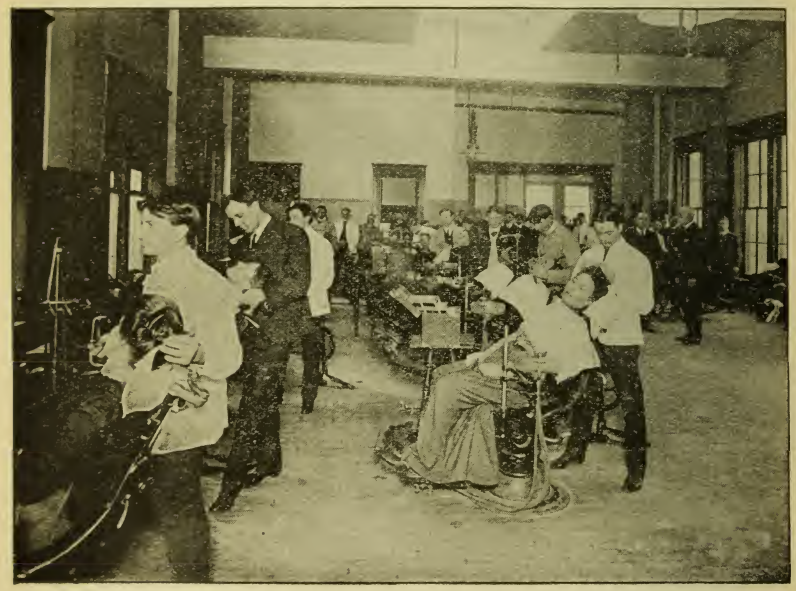
THE PROSTHETIC CLINIC is divided from the operative clinic room by a broad archway and is 53 by 32 feet. It is lighted upon two sides and by a skylight running the length of the room. It is equipped with thirty operating chairs, with brackets, fountain cuspidors and tables. This space for the clinical operations of the school is furnished with wash bowls, supplied with hot and cold water at various convenient points. The material office and the various other departments are easy of access to students.

IN THE DEAN'S OFFICE.

THE SENIOR PROSTHETIC LABORATORY is immediately adjacent to the Prosthetic Clinic, porcelain and crown and bridge room and is 54 feet long by 24 feet wide. It is furnished with electric lathes for grinding and polishing work and with electric ovens and other necessary equipment for porcelain work and the variety of apparatus necessary in that department. It contains lockers for the instruments of students for this especial work. Removed from this a few feet is the IMPRESSION

ROOM, with a WAITING ROOM for the patients. THE TWO EXTRACTING ROOMS open from the same corridor as the impression room; they have also a WAITING ROOM, and are very well lighted.

THE SYSTEM OF LECTURE ROOMS is very complete in its arrangement Each one of these rooms is supplied with a preparation room for the use of the Professors; each lecture room occupies the entire height of the story, 24 feet, and each seats comfortably about 225 students. They are arranged on the amphitheater plan, or with seats that rise in tiers



IN THE PROSTHETIC CLINIC.

above each other, so that in the back part of each the space under the seats may be occupied for other purposes.

THE ORAL SURGERY ROOM is very complete in its arrangement and equipment for the handling of the classes of surgical cases, for which it is designed. From the corridor one enters first into the waiting room for patients, suitably furnished with chairs and accessories. From this the patient is ushered into the preparation room, a three-cornered space

with abundant light, in which such preparation as may be necessary can be made before entering the oral surgery room proper. This communicates immediately with the OPERATING AREA of the oral surgery room; it also communicates by a short hall with the RECOVERY ROOM. This room, 12 by 20 feet, is equipped with bedding and the necessary apparatus for taking care temporarily of patients who have been operated upon, or during the time of recovery from anæsthetics, and such other accommodations as may be required. The oral surgery and

LECTURE ROOM NO. 1.

lecture rooms are especially good and comfortable for the purposes designed. All of them are lighted from the ceiling.

THE ANATOMICAL LABORATORY is on the mezzanine or seventh floor and very well apart from the other rooms. It is of easy access from any part of the fifth and sixth floors, is large and well lighted upon two sides and by skylights, making it a very desirable room for the purpose. Connected with it is a private room for the accommodation of the Professor of this department. This room is equipped with suitable

tables, wash bowls with hot and cold water, and every convenience for anatomical work.

THE FIFTH FLOOR is the laboratory floor proper and contains THE PRINCIPAL LABORATORIES for the Freshman and Junior classes, the LIBRARY, MUSEUM AND READING ROOM. The laboratories are roomy and well lighted, and furnished with electric power for lathes and improved apparatus and arrangements, each for its especial work. THE READING ROOM, which is entered almost directly from the elevator, is furnished with tables and chairs for the accommodation of about 100

LECTURE ROOM NO. 2.

students at one time, and the arrangement of the museum is such that the students can examine the specimens at all times. THE LIBRARY is easy of access, with Librarian in attendance. The room is well lighted and pleasantly situated, and especially desirable as a place for the student to pursue the work of study. Here he can always find a quiet place and books for the further investigation of any subject in dentistry.

IN THE JOURNAL ROOM, where the journalistic literature of the dental

profession is almost complete, a space is set apart with tables and chairs especially for the use of the professors of the school or visitors who may wish a place for purposes of study apart from distractions of other parts of the building. This is especially intended as an assistance in the study work of the preparation of lectures or articles when much consultation of books and journals may be required by the professors or friends of the school.

IN THE THEODORE MENGES DENTAL LIBRARY.

The laboratories upon this floor are well equipped and well lighted, each having its own arrangement for electric light upon dark days or other times when it may be needed.

THE HISTOLOGICAL AND BACTERIOLOGICAL LABORATORIES occupy the same room, 64 by 25 feet, and use the same microscopes and other general equipment, at different hours. The Histological Laboratory has its own preparation room at one end of this space, while the Bacteriological Laboratory has its own preparation room at the other end, making these

two different departments entirely distinct from each other, while using the same room, benches, etc., for teaching purposes.

Each of the laboratories on this floor has its professor's room, a room for its material, or whatever accommodation it may need, in space set apart for its special purposes. There are a number of small rooms which are used as private rooms for the professors or for some special purpose connected with school work as may from time to time be required.

THE CHEMICAL LABORATORIES of the Dental School occupy a part of

IN THE HISTOLOGICAL LABORATORY.

the second floor of the building. There are two separate laboratories, one for the Freshman and one for the Junior class, with the necessary material room, scale room, furnace room, etc. These laboratories are large and well equipped, and have special devices connected with electric fans for carrying away offensive odors beyond the housetops. These laboratories may be reached conveniently by elevators and by three stairways from the rooms above.

The office of the President of the University and the office of its Business Manager are on this floor, as is also the assembly hall, a room 60 by 40 feet. Alumni parlors, in charge of the Young Men's Christian Association, are on this floor. They are available not only to alumni but to all students for purposes of rest and recreation.

The offices of the dental supply houses are located on the Dearborn Street side of this floor.

The Law School occupies the third, while the School of Pharmacy occupies the fourth floor of the building.

SITUATION AND SURROUNDINGS.

The central location of the School and its convenient access from every point, affords many and peculiar advantages to its students. It gives them the widest possible range of choice of residence while attending the school without inconvenience in coming and going. It also gives the school the widest range of territory from which to draw the extensive clinic so necessary to a great dental school. The patients for this clinic come from all parts of the city of Chicago and its suburbs. The personal influence of the students of the school, each one of whom draws from his own friends and acquaintances made in and about his place of residence, is an invaluable adjunct to the number who come simply as acquaintances of the school. Patients who come as the friends of students make up the personal clinical practice of the individual student.

In this the out-of-town students seem to be in no respect less favored than the student whose home is in the city. This gaining, and holding, a personal clinical practice under the supervision of the instructors in the clinic rooms has come to be one of the features of this school that has a telling effect upon the after-practice of its students. By this plan of work the student not only learns the theory of practice and the manipulations of practical operations in dentistry, but he passes at once to the work of real experience in building a practice for himself; in gaining that skill in professional comity and personal manner, between himself and his patients, which is as necessary to him in after years, in drawing together and maintaining a practice, as his knowledge of dental diseases and his skill in their treatment.

For these reasons the residence of students in groups in widely different portions of the city is favored. This also gives the benefits of a more homelike life while giving in the aggregate a far better conception of life in a great city and decidedly better opportunity to draw

upon its advantages while shunning the disadvantages of large gatherings of students in a single locality.

Chicago is a great city and gives many opportunities to the student who learns to avail himself of them. LINCOLN PARK on the north offers, besides its beautiful pleasure grounds, some grand botanical gardens and winter conservatories, where all manner of plants may be enjoyed or studied. A fine ZOOLOGICAL COLLECTION where a large variety of animals and bird life may be studied, and the MUSEUM OF NATURAL HISTORY, in which there is a very large collection of birds, animals, and fos-

IN THE OPERATIVE TECHNIC ROOM.

sil remains of extinct animal life. JACKSON and WASHINGTON PARKS on the south, besides their extensive pleasure grounds, also offer splendid botanical gardens and winter conservatories, while the FIELD COLUMBIAN MUSEUM offers a rare collection of Natural History specimens especially suited for the study of comparative dental anatomy, and of modern and ancient skulls and the condition of the teeth in the various races and types of men in different ages. The admission to

this museum is free to students on presentation of their matriculation tickets to this school. Many other parks afford favorite pleasure grounds.

LIBRARIES.

A Number of Libraries are accessible to students who have taste for study, or for looking up subjects of scientific or literary interest, or in connection with special studies.

The University Library Collections offer very abundant facilities for students. They are ample in the number of books adapted to the different schools and are so situated as to be easily accessible; generally within the school buildings. They consist of:

The College collection.

The Law collection.

The Medical collection.

The Pharmacy collection.

The Theodore Menges Library of the Dental School, and

The Theological collection.

Chicago Library (305,575 volumes, June, 1905) is on Michigan avenue and Washington street, five minutes' walk from the school. It is one of the finest libraries in the country. Students may receive books from this library when vouched for by responsible persons known to the officials. This library has also many branch offices in different parts of the city, from which books may be received on application. These will often be convenient to the boarding places of students.

The Newberry Library is very large (280,000 volumes, June, 1905). and, besides general works, has also a large medical and dental library. It is on North Clark street and Walton place, and may be reached in a ten minutes' walk. This is a reference library, and books can be used only in its reading rooms.

The John Crerar Library (148,000 volumes, June, 1905) occupies one and one-half floors in the Marshall Field building, corner Wabash avenue and Washington street. It is devoted mainly to the natural, the physical and the social sciences, with their applications. It is a most excellent collection of books. It is a reference library, and its books are used only in its reading rooms.

These libraries are accessible to our students, and they will find in them not only a very large collection of books, but also men in attendance who are able and willing to assist students in finding anything that they contain upon any given subject.

There are a large number of other libraries, both general and on special subjects, that are available to the student who may wish to make proper and legitimate use of them.

COURSE OF STUDY.

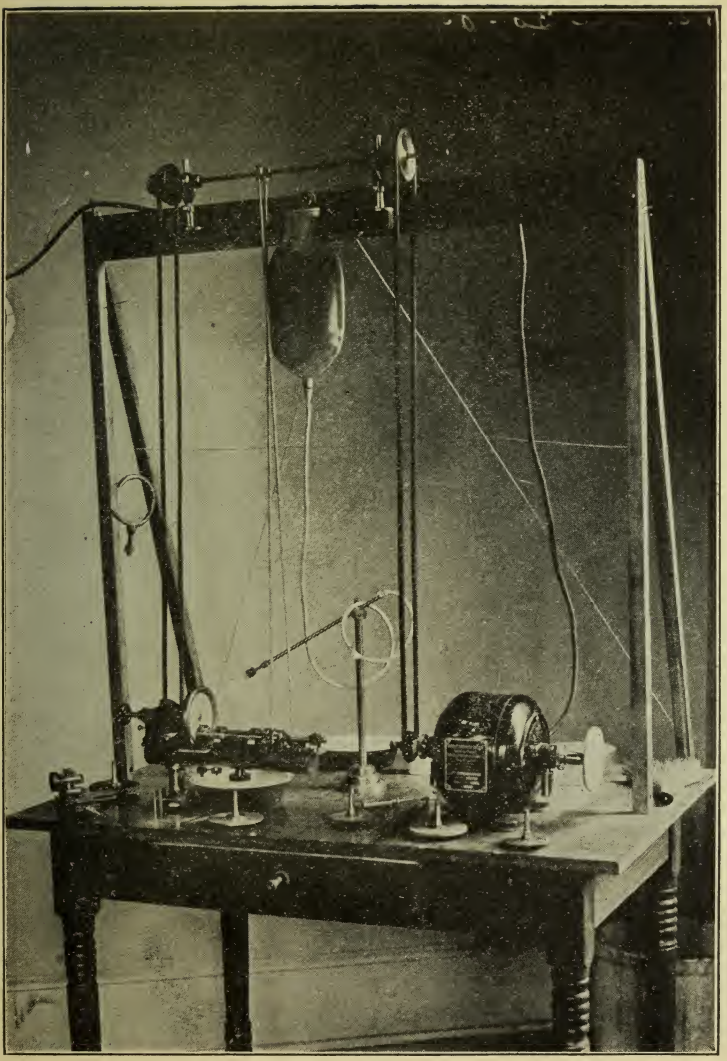
The regular session of 1905-1906 will begin on Tuesday, October 3d, 1905, and continue till May 31st, 1906. The regular work of the school year will begin immediately upon the organization of the respective classes. The courses of instruction are progressive and extend over a period of three years, the teaching in one year not being repeated in the next. The students are strictly graded into Freshmen, Junior and Senior classes, each having its separate and distinct courses of study. No professor delivers lectures to more than one class at one time. Therefore, in each class throughout the whole period the teaching is directed solely to the particular class. In the operative and prosthetic clinic rooms the teaching by the corps of demonstrators is directed to the individual student and adapted to his individual needs. These are, therefore, occupied by the junior and senior classes in common.

A Resume of the several courses of study which follow will give a good idea of the work of the school:

The study of general anatomy is begun in the freshman year and continued through the freshman and junior years. This is made one of the most interesting and profitable courses of study in the school.

Anatomy is taught by dissections, demonstrations, recitations and written examinations. The class is divided into groups, working under competent demonstrators in the dissecting room, and the individuals of each group are quizzed daily during their period of dissection upon the structures which are being dissected. Lectures and demonstrations follow, amplifying and further explaining the various anatomical points, so that the course may be as practical as possible. The student is required to dissect the median half of the body during the two years, the arm and leg in the freshman year, the head, neck and viscera in the junior year.

In Histology and the Histological Laboratory Work, the classes are divided into sections. The freshman studies begin with the vital manifestations and structure of the living cells as exhibited in the large, single cell animal and plant forms common in ponds and ditches, such as amœba, vorticellæ, rotifers and infusoria. The single cell forms are followed by the study of the formation of cell masses, or tissues, using first the Algæ, forming threads and sheets of cells, and proceed-



A machine for slicing teeth or other hard substances and for grinding these to the thinness required for microscopic study, recently added to the Histological Department.

Fig. 1 represents the grinder as a whole. The table is 40 inches long.

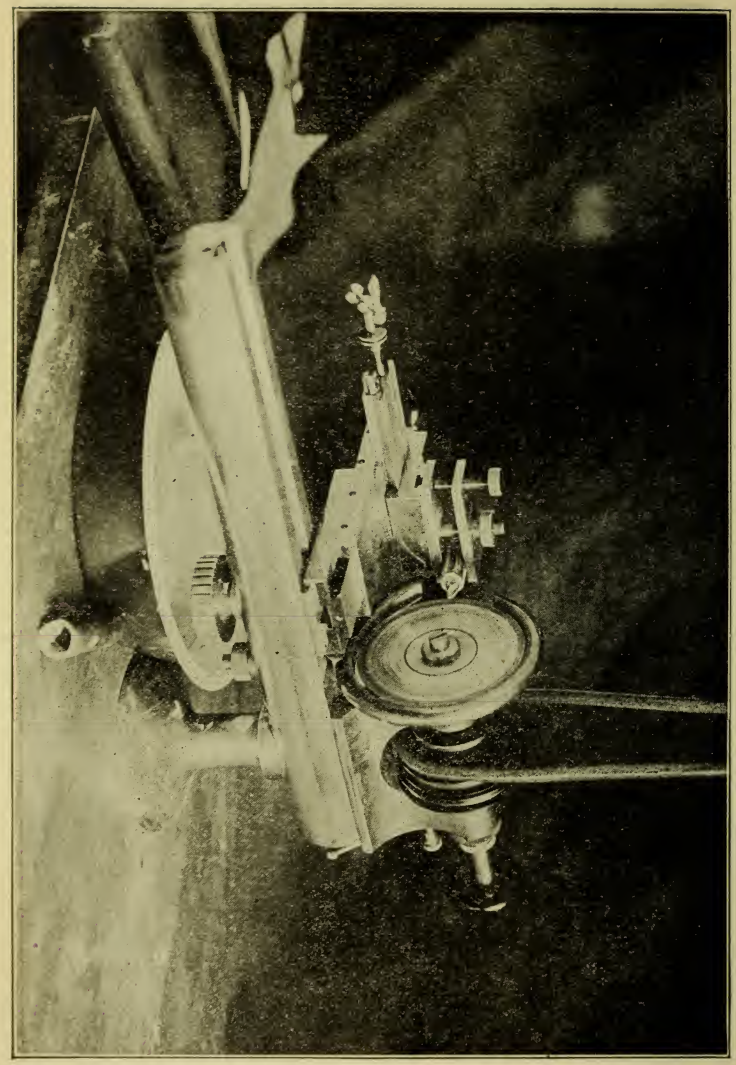


Fig. 11 represents the arrangement for slicing teeth.

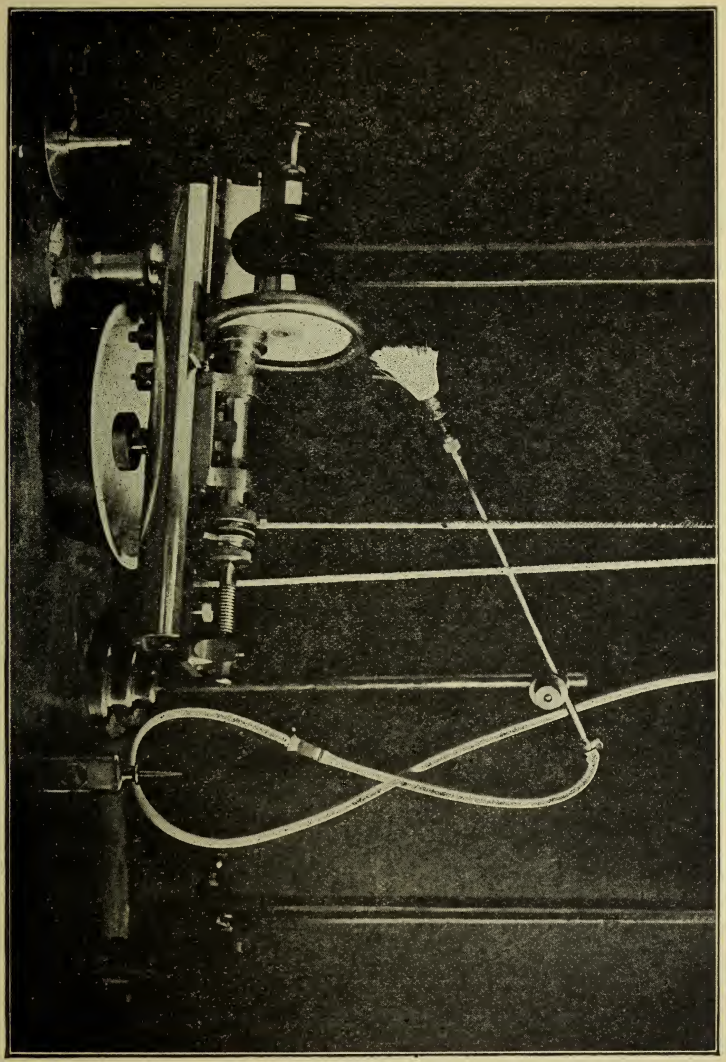


Fig. III represents the arrangement for grinding the sections to the required thinness.

The machine, as a whole, consists of an electric motor, a counter shaft for transferring the power by belts and pulleys, a heavy watchmaker's lathe to which special attachments are fitted for doing this special work.

In figure 2 the arrangement is for slicing teeth. The wheel used is of aluminum plate, 26 gauge, and while at work is fed with corborundum powder mixed with water and soap. This will readily cut through glass or a rat-tail file. It is surrounded by a spatter guard, which catches all spatter from the wheel and delivers it in a pan below. The teeth to be cut are set in a tube with plaster of paris and fixed in the slide rest of the lathe.

Fig. 3 shows the grinder. In this the stone or lap used for grinding is also surrounded by a spatter guard, which catches all water and delivers it in the pan below. The rougher grinding is done with a lap wheel, fed with carborundum powder. The finishing is done with a very fine India oil stone, using water and soap instead of oil. The water is fed to the stone from the waterbag above through a tube and delivered through a brush, which is placed against the stone when in use. This gives a very smooth polished surface to the section.

The section, when cut with the slicing arrangement and one side polished, is fixed on a disk with balsam or shellac. Anywhere from one to six or ten sections may be ground at once. This disk rotates in the opposite direction from the stone, and every part of the face of the stone is used in the grinding. The pressure is controlled by an adjustable spring. The whole is furnished with a most perfect micrometer for gauging the thickness to which sections may be ground, to one-half of one thousandth of an inch, which is self correcting for all wear. The machine proves to be accurate, speedy and easy of management.

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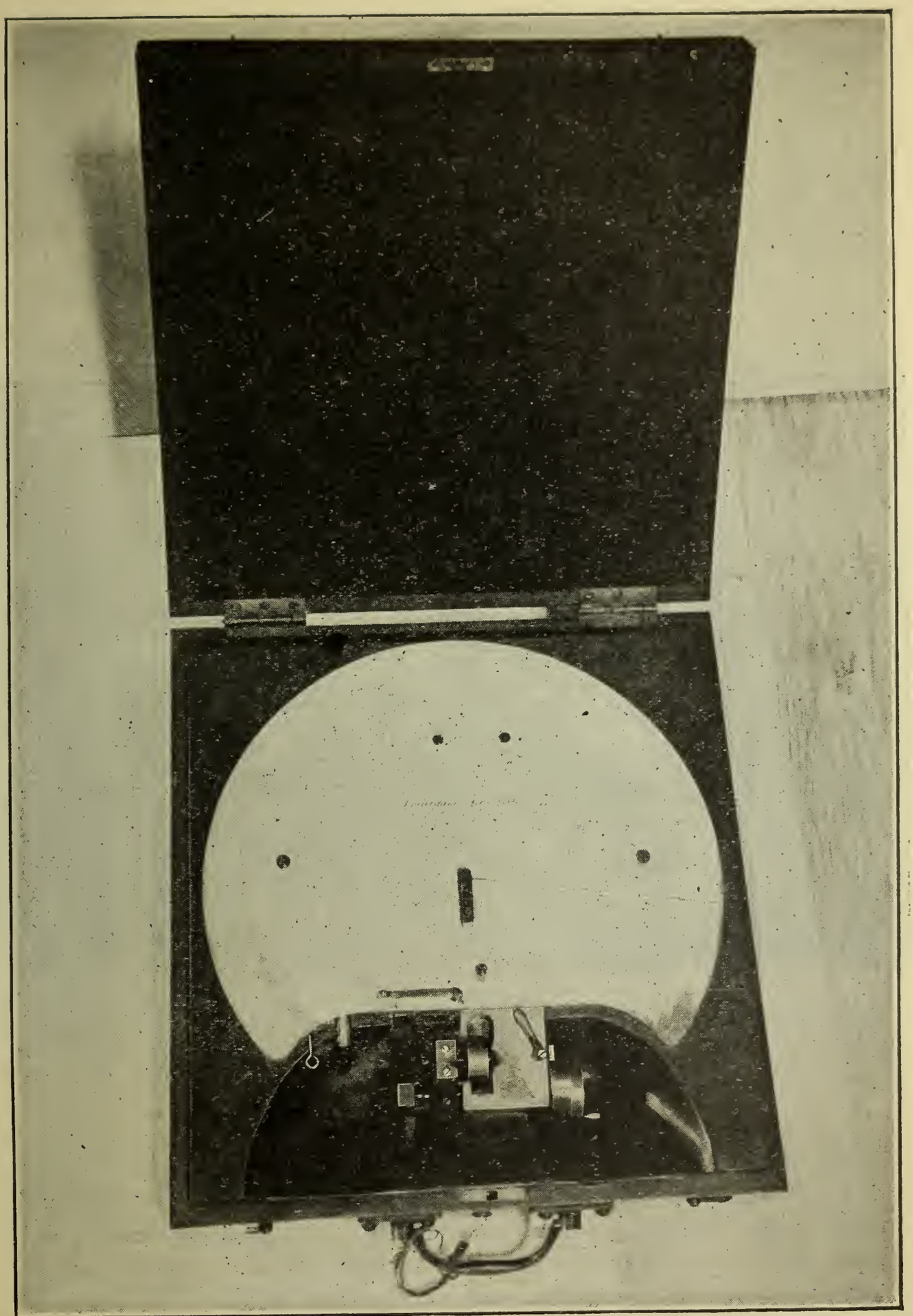
ing to those that form tissues of similar cells. In these studies the various forms of the reproduction or multiplication of cells are studied. Then the various elemental tissues of the animal, the epithelium, connective tissue, muscular tissue, and the nerves are taken up. The work is done in the first semester. In the second semester the relations and arrangements of the elemental tissues in their combinations which form the organs of the body are studied. The labortary work follows the order of the lectures, accompanied by regular text-book study. The lectures are illustrated by a large number of photomicrographs thrown upon the screen with the electric lantern.

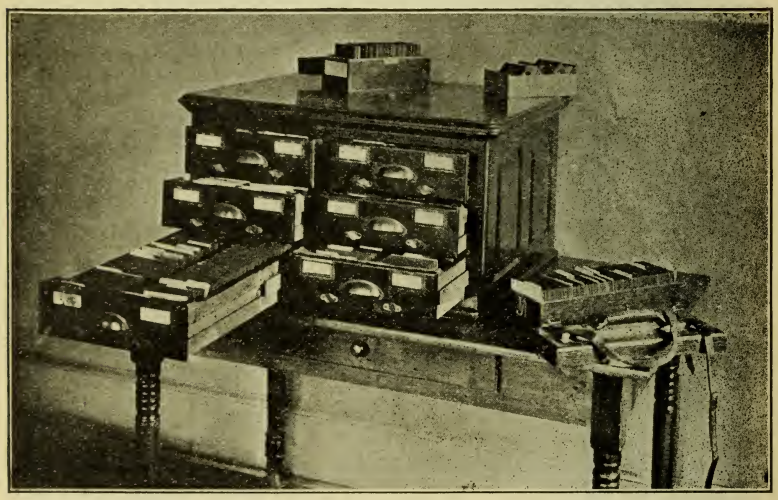
THE SECOND YEAR is devoted mostly to the teeth and related tissues First, the bones and periosteum, then the dental tissues, the enamel, dentin, cementum, dental pulp and the peridental membranes. The enamel is studied with special reference to the arrangement of the enamel rods and their inclinations upon different parts of the crown, its lines of cleavage, its lines of strength and of weakness with relation to the preparation of the enamel walls and margins of cavities. The nature and structure of dentin with its system of dentinal tubes and fibrils. The cementum, its structure, functions and relation to the peridental membranes, its formation, destruction and repair. The dental pulp with relation to the formation of dentin and its structural elements with relation to pathological conditions. The structure and tissue of the peridental membrane in relation to its functions and its diseases. Sections of all these tissues are prepared, mounted and studied in the laboratory and careful drawings made of them by each



Amalgam Micrometer, designed especially for determining the expansion and shrinkage of amalgams, but capable of doing a multitude of other measurements where extreme accuracy is required. Its unit of measurement is one ten-thousandth of an inch. The dial is 12 inches in diameter.

student, so that each may obtain that working knowledge of them so necessary in the practice of operative dentistry. The large collection of photomicrographs of these tissues used in the laboratory are of great assistance to the student. The development of the teeth is followed from the formation of the dental ridge to the completion of the formation of the teeth. In this work demonstration in modeling clay clear up many difficulties.

Physiology includes a course of two lectures per week and text-book study with quizzes in the *freshman year*, covering cell metabolism, nu-



Case containing now about two thousand lantern slides, to which others are being added every year. It contains illustrations in almost every department of dentistry, but is especially rich in operative dentistry, histology, bacteriology, orthodontia and surgery.

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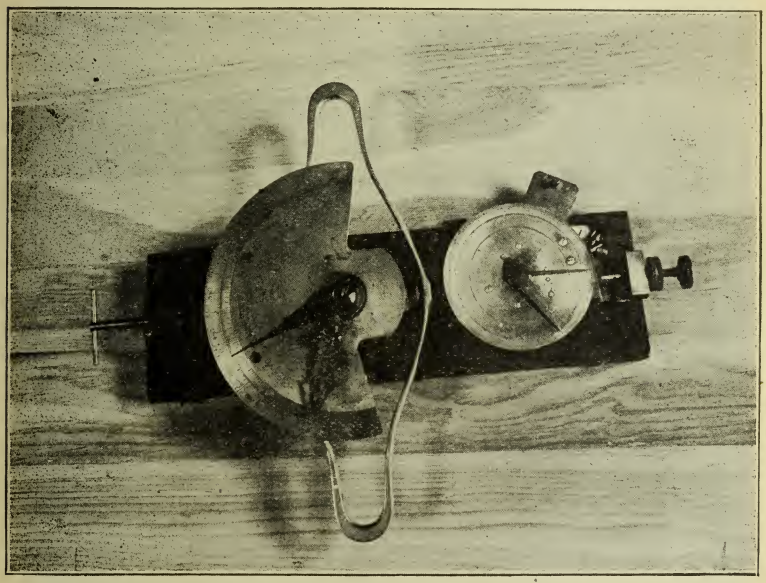
trition and the digestive functions, including the functions of the various secretory and excretory organs, together with the functions of support and motion, or the osseous and muscular systems. In the *Junior year* the subject will be continued in one lecture per week, devoted mainly to the brain, nervous system, and to the functions of reproduction.

General Pathology. This course, consisting of one lecture per week during the junior year, while essential to render the student

intelligent as to general pathological conditions, forms the basis of his studies of the special pathology of the tissues of the teeth, their membranes and correlated tissues and organs of the mouth.

ANATOMY OF THE HUMAN TEETH and OPERATIVE TECHNICS are taught somewhat in connection, the first semester being given more especially to dental anatomy and the second semester more especially to operative technics. The first two weeks are given mostly to the study of dental nomenclature, or the study of the names of things with which the stu-



Dynamometer with micrometer attachment, a smaller and lighter instrument than that on page 34, for use in measuring the stress required to crush blocks of amalgam (experimental fillings), measuring flow, trying the solidity of experimental gold fillings, and a multitude of similar things where it is important to know the strength of material. The smaller dial is the micrometer and the larger the dynamometer. The unit of the micrometer is one-thousandth of an inch, and the range of the dynamometer is four hundred pounds. The bed is 13 inches long.

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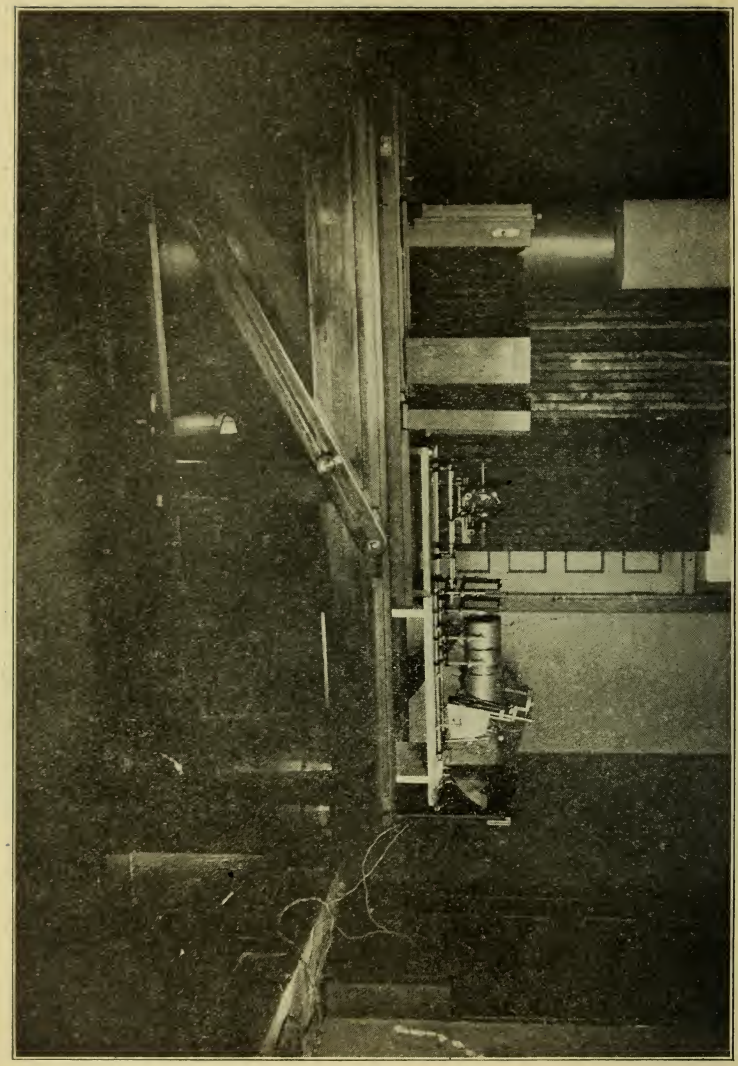
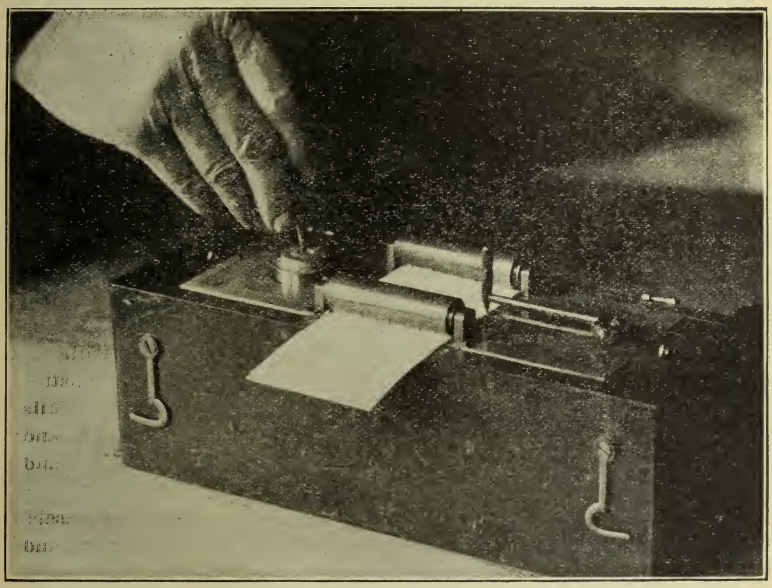
dent must become familiar in the course of his dental studies. Then descriptive human dental anatomy is taken up and the forms and surface markings of each tooth studied. This part of the work is illus-



Microphotographic Camera, seven feet long as shown, and has extension arrangement to ten feet, for taking photographs of microscopic objects, recently added to the outfit of the histological laboratory, together with cameras and a great variety of lenses for all kinds of photographic work, and lantern slides required by teachers for illustrative work in any department of the school.

trated by models enlarged about thirty times, and by photographs of the teeth used as lantern slides, enabling the lecturer to locate every detail of form and of surface markings upon the teeth so that they may be accurately understood. This method of illustration greatly facilitates the progress of the student.

After a lecture and a recitation upon a particular tooth the student selects several of that denomination from a large number of promiscuous teeth and files at least one longtitudinal and two transverse sections



The Dentist's Manudynamometer, (length of box 13 inches,) an instrument for testing the power of the thrust of any instrument held in the hand. The instrument makes a record on specially prepared paper automatically, giving the force of the thrust in pounds. This is important in manual training, for the reason that it points out deficiencies accurately and the necessary direction of training to bring the best results.

for the study of the pulp chambers and root canals, together with their relations to the external surfaces of the tooth. This general plan is carried out with each tooth of the human mouth. In order that tooth forms may be more perfectly impressed upon the mind during this study, a carving of a tooth of each class, as the incisors, cuspids, bicus-

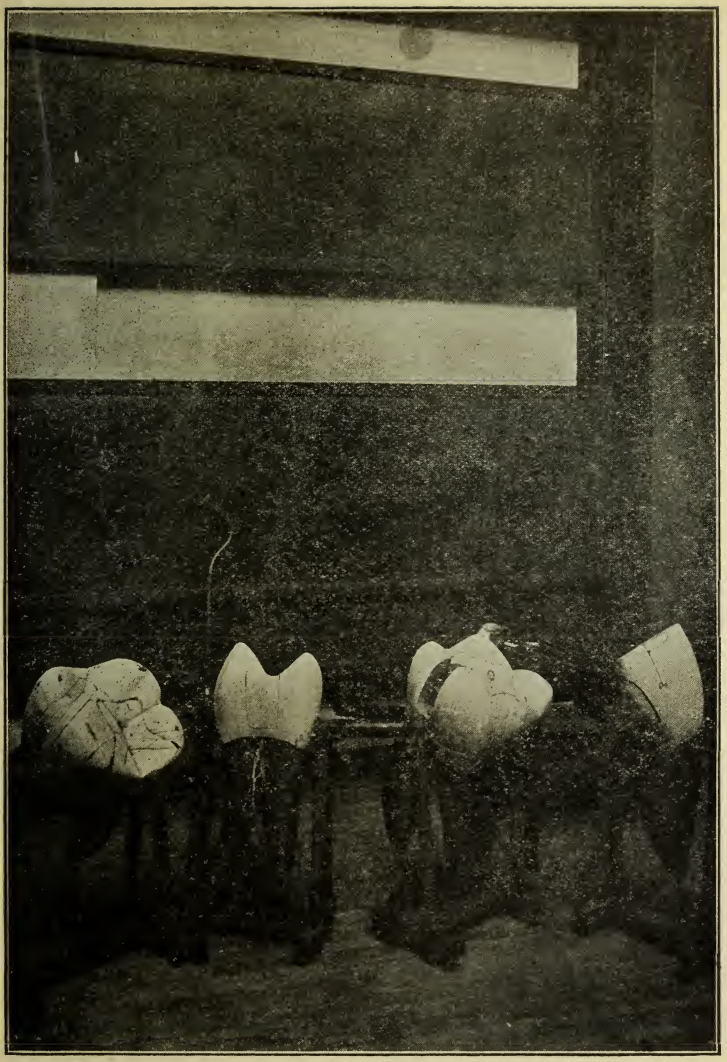
pids and molars, is made by each student in bone or ivory representing the actual size and form of the tooth. In this work the roughing out is done with the file, but the cutting of all the detail is done with the excavators that the student will afterward use in practice, he being required to grasp and use the instruments as he will do in operations in the mouth.

Instruments having now become in a degree familiar are taken up and their classification, the rules governing their construction, the range of useful forms, the names of each under the descriptive formula plan, and their proper care, are made subjects of careful study. It is particularly essential that each student be familiar with the forms and uses of each instrument in his set. With this end in view he makes a model in brass of the working point (not the handles) of each to actual measurement and the special uses of each are carefully taught in connection with actual cavity preparation in extracted teeth, ivory, and bone. In this work cavities are classified and models of each are made by each student. The requirements for the preparation of seats, the anchorage for fillings, and the forming and finishing of cavity margins, are carefully explained and strictly enforced. Special attention is given to the cleavage of the enamel, to its lines of strength, and to its lines of weakness, that these may be taken advantage of in practical work. In this work photomicrographs of the enamel thrown upon the screen with the lantern are used for illustration. In all of this the teaching of instrument grasps, finger rests for the perfect control of force, and the details of instrumentation, is continuous, and the same plans are continued and used in all the operative departments afterward by professors and demonstrators.

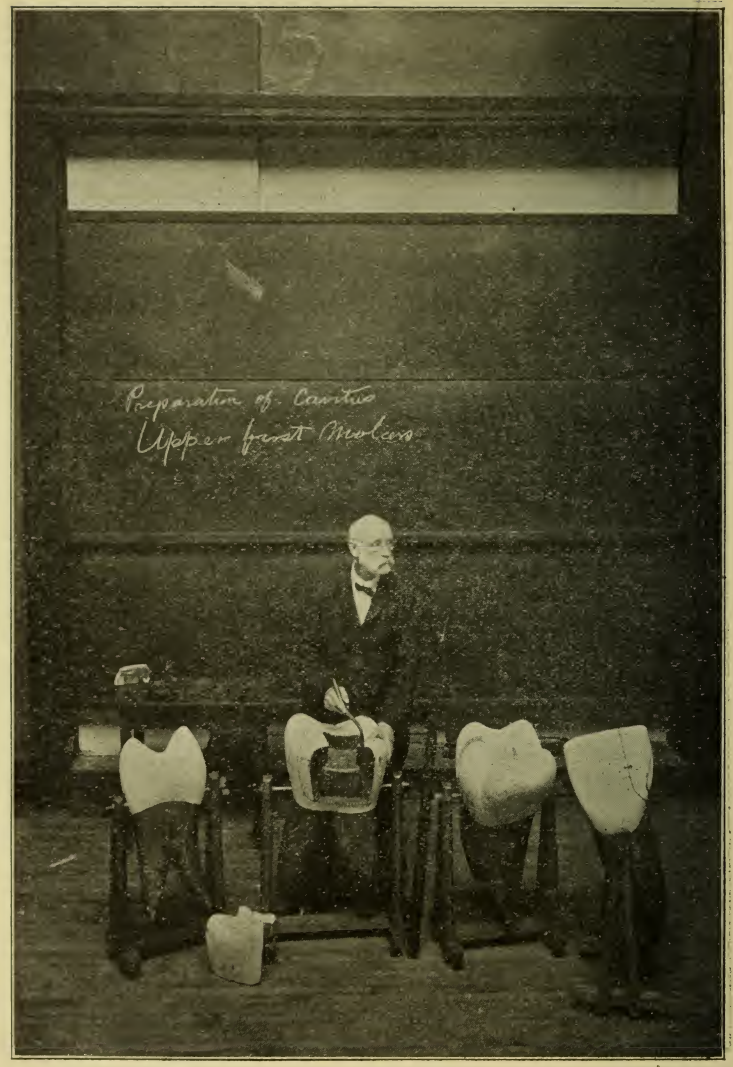
After the cavities have been passed upon by the teacher or his assistants, the study of the working properties of cement, amalgam, and gold, and the instrumentation in their use, is studied and demonstrated, and the cavities filled by the student. This course is very important in the knowledge acquired, in the training of the hand and eye, and is interesting to the student.

NOTE.—*The operations in the Technic departments require a very large number of natural teeth, and a sufficient supply is sometimes difficult to get. It will therefore be to the interest of students if they will bring with them all the extracted teeth they can obtain.*

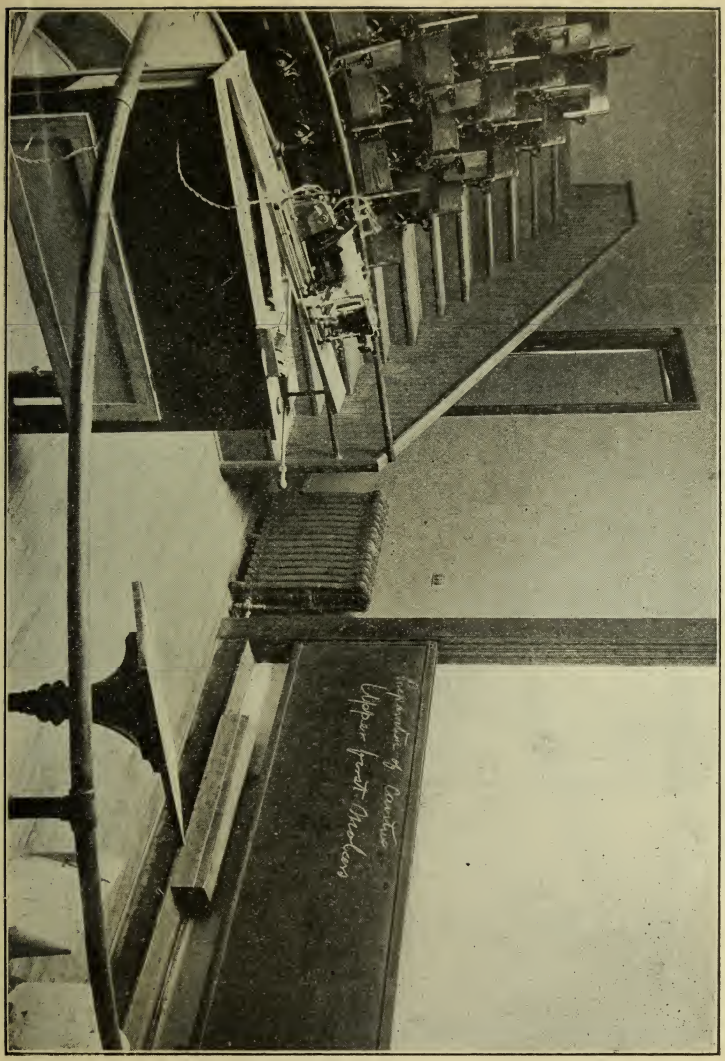
THE SECOND YEAR'S COURSE IN OPERATIVE DENTISTRY consists of two lectures per week during the term. The work is a regular advance upon the work done in operative technics in the freshman year, giving more



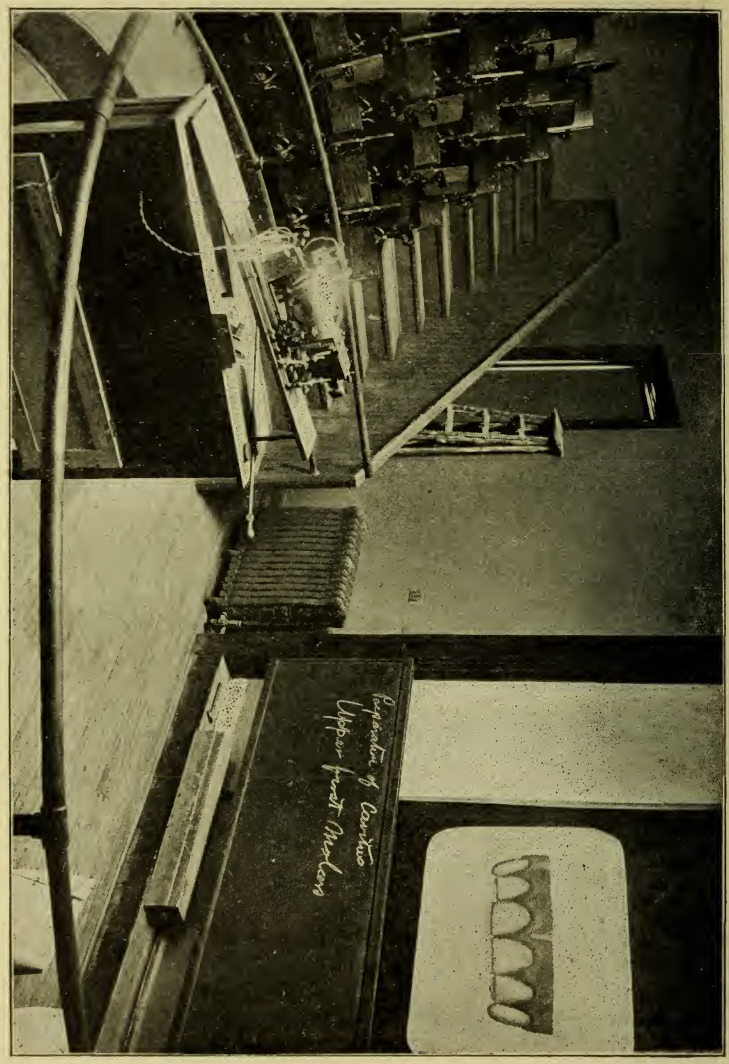
This plate shows the adjustable blackboard used in the lecture rooms. There are three of these in the different rooms. It also shows the models of teeth used in demonstrating cavity preparation and filling operations.



This plate shows the same with blackboard in a different position and the professor before his class.



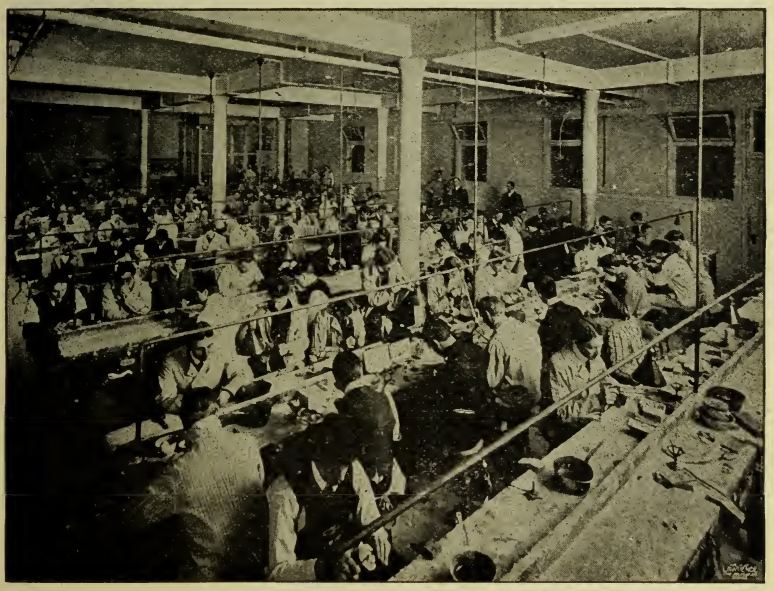
This plate shows the projection lantern used in illustrating subjects, in its place as used. In this the blackboards are run down out of the way and the wall behind them is used as a screen.



This plate shows the same with an illustration thrown on the screen.

definite application of the principles to the practical operations in the mouth. At the same time the students will begin putting the teachings into practice in the infirmary.

At first a brief review in lecture and quiz of dental nomenclature, and especially cavity nomenclature and in instrument nomenclature, will be given to be sure that all students know these sufficiently well to proceed and follow the lectures understandingly. Then the subject of cavity preparation will be given in detail step by step. Cavities will be classified and the plans of the formation of each class will be given,



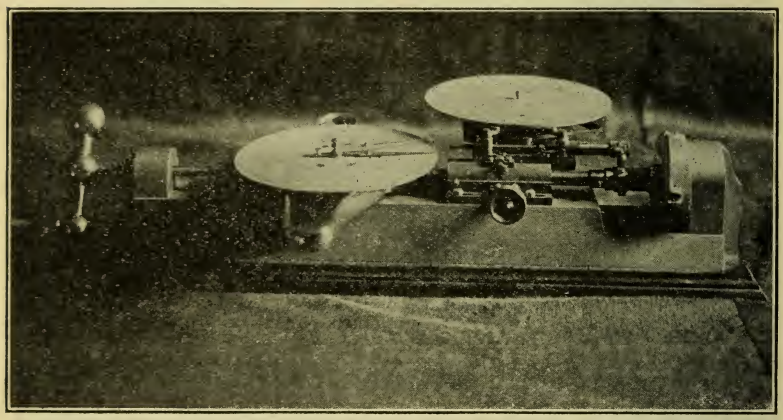
IN THE PROSTHETIC TECHNIC ROOM.

together with the particular instrument to be used in each part, and the methods of instrumentation to be followed in each individual class of cavities.

It is intended that this junior course in operative dentistry shall be especially a drill in technical procedures in filling teeth.

THE DEPARTMENT OF PROSTHETIC DENTISTRY, in all its branches, will be under the supervision of the professor in this department, who

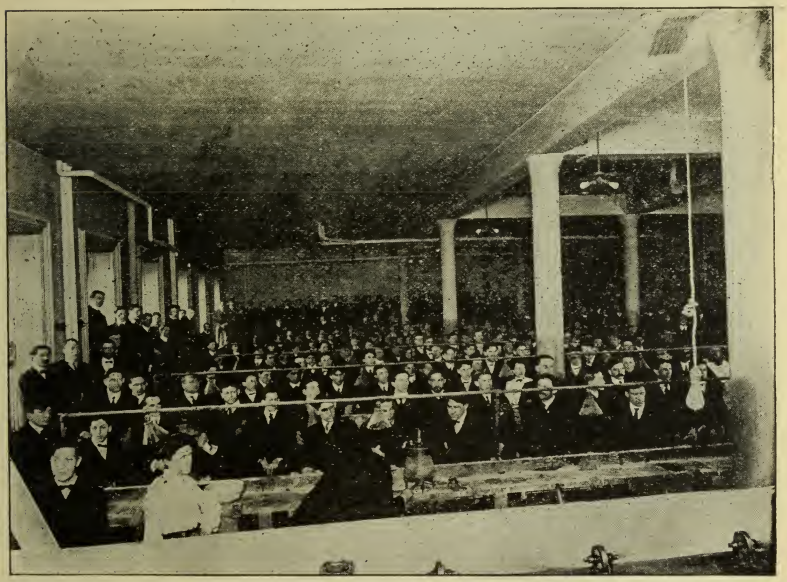
gives this his whole time. He will deliver the lectures and manage in person and through his assistants the quiz work and special lines of clinical instruction. This arrangement places all of the processes of clinical instruction under the control and direction of one professor, which prevents confusion in method and in the detail of technical procedures which so often confuse the student and cause loss of time in gaining a working knowledge of them.



Dynamometer with micrometer attachment, designed and built especially for testing the compressibility of plaster of paris in flasks used in vulcanizing rubber plates and determining the force that can safely be used in closing flasks. The bed is 22 inches long. With the micrometer attachment any yielding of the plaster is measured up to the one ten-thousandths of an inch. The apparatus is capable of measuring any pressure from one to thirteen hundred and fifty pounds and determining any yielding that occurs. The upper right hand disk is the micrometer, while the left hand and lower disk is the register of pounds. It is also used for testing the strength of material used in prosthetic dentistry, such as the strength of porcelain teeth, crowns, bars for bridges, the differences between annealed and hammered bars, and many other determinations that it is important that the dentist should know.

Prosthetic Technics occupies three hours per day, three days in the week, during the freshman year, with one lecture per week. The lectures accompany and cover the processes undertaken in the technic laboratory for each week, the student performing under competent demonstrators the operations and using the materials and appliances described in each lecture. The course will begin with taking impressions of the mouth for partial and full cases, using all of the various materials and appliances employed for that purpose. The manipula-

tion of plaster-of-paris, preparing impressions for securing models, model making, and separating from impressions, making trial plates, occluding and waxing teeth in position, investment of cases, or flasking, description of vulcanizers and the processes of vulcanization, scraping, carving and polishing vulcanized cases, and methods of repairing vulcanite dentures, all of which will be illustrated by the practical work performed by the student in the laboratory.



IN THE JUNIOR PROSTHETIC LABORATORY.

CROWN AND BRIDGE WORK.

Preparation of the roots of extracted teeth for bands, fitting bands, carving cusps in plaster and other material, making dies, swaging cusps, soldering cusps to bands, and finishing. Making porcelain-faced crowns, conforming bands and constructing cope-grinding and backing facing and fitting to cope, investing, soldering and finishing, constructing various forms of porcelain and metal dummies, assem-

bling crowns and dummies previously constructed and forming bridges, investing, soldering and finishing.

Making dies and counter dies for metal work, including preparation

Apparatus for testing the expansion or contraction of plaster used in taking impressions and in making models and determining warpage from that cause; also for determining expansion and contraction of investment materials or compounds under heat when used for soldering purposes and determining warpage from that cause. This shows the dangers and enables the best selection of these materials to be made and how these may be manipulated to reduce these changes to the minimum. The Box is 13 inches long.

of model and making sand impressions, conforming metal plate to die, and swaging, trimming and finishing swaged plate, occluding and waxing teeth in position, backing, investing and soldering; also attach-

ment of teeth with vulcanite, grinding, filing, scraping and finishing. This will include full and partial cases.

Making lower dentures of cast metal, including special preparation of model, waxing up, investing, casting and finishing cases.

It is the intention that this course shall render the student familiar with the various materials and processes used in prosthetic dentistry, train his hand in the performance of the mechanical work, and fit him for the more complex technic work and the practical prosthetic cases to follow in the second year.

IN THE SENIOR PROSTHETIC LABORATORY.

DENTAL METALLOGRAPHY will be presented in a short course of lectures during the freshman year, in which those metals used in dentistry will be most prominently considered, as iron, steel, copper, zinc, tin, lead, aluminum, silver, gold and platinum.

THE INSTRUCTION IN PROSTHETIC DENTISTRY IN THE SECOND YEAR includes one lecture per week, advanced technics and practical cases for patients. It begins with a review of taking impressions and the pro-

cesses in vulcanite and will include the details of working celluloid. The construction of gold plates, full and partial, and the working of aluminum in the making of cast plates and swaged plates, and the making of weighted dentures. Continuous gum work is also introduced in this course. The principles of construction of all of the various crowns at present in use, the Logan, plain and banded, shell crowns and carving cusps and conforming them to the occlusion, porcelain-faced crowns and porcelain crowns. Also a study of the stress applied by the muscles of mastication to the teeth, both singly and collectively, with its bearing upon crown and bridge construction, including the conditions under which bridges should or should not be used.

The Senior Year in Prosthetic Dentistry will be devoted more especially to infirmary practice, which will include the practical construction of the various crowns, bridges and plates of vulcanite, gold, aluminum, celluloid, continuous gum, etc., for patients. An advanced lecture course will also be given, occupying one hour per week, which will include new methods and appliances and reviews.

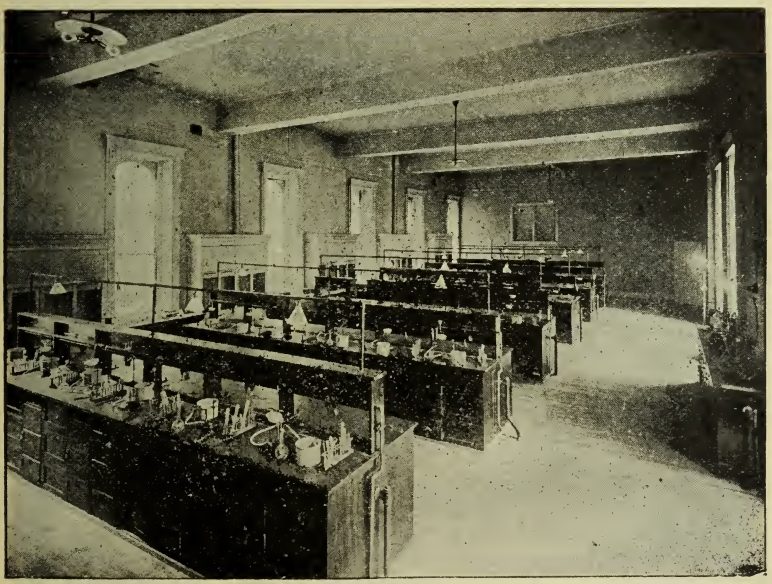
The Infirmary Prosthetic Practice will have its special demonstrating force, which devotes its whole time to this work, and the demonstrators will be sufficient in number to give much time to individual students, directing them as to methods and demonstrating points of especial difficulty as they present themselves.

Porcelain in crown and bridge construction and in inlays is assuming increasing proportions in dentistry in recent years and this school is carefully increasing its facilities for teaching in all the lines to which porcelain is applicable. Besides the regular equipment of furnaces for the school we will this year have placed a sufficient number of electric connections for the use of students, or groups of students, who may wish to own and use their own electric ovens for porcelain crown and bridge work and for porcelain inlays. This plan will give students who may desire to become especially proficient in this class of work abundant opportunity for extended technical and clinical practice.

The Course in Comparative Dental Anatomy consists of one lecture per week, followed with two hours in the museum. In the museum the class will be divided into convenient sections for the examination and study of specimens. In this course the student will study the animals, their food habits, the uses they make of their teeth, the forms of their teeth as related to food habits and as weapons of offense and defense. This will include a study of the extinct species of animals of the several classes, the variations that have occurred in their tooth

forms in the various geological ages, together with the development of the complex tooth forms from the simple forms of the earlier animals, or the history of the origin and progress of the development of the tooth forms as they now exist in the animal world, and the uses made of this history by the geologists and students of natural history in the study of geological strata and extinct species of animals.

The Chemical Laboratories, which are used exclusively for teaching Chemistry to dental students, are large, well ventilated, well lighted



A PORTION OF THE FRESHMAN CHEMICAL LABORATORY.

and complete in every respect. A laboratory 32 by 72 is devoted to the General Chemistry and Qualitative Analysis of the first year. Another, 52 by 60, is arranged with special reference to the experimental teaching of Metallurgy and other practical work of interest to dental students.

In addition to the main laboratories there are large dispensing rooms, a balance room, well equipped with balances and apparatus for testing the physical properties of metals, amalgams, etc., and a room

12 by 12 which is covered with a hood for carrying off fumes. In this are found the furnaces employed in alloying, assaying and refining.

The professor's office and private laboratories are on the same floor with the main laboratories.

The course in Chemistry is designed to give instruction in the elements of the science, and at the same time to be of such practical nature as to materially aid the student in other departments of stury.

IN THE SECOND YEAR CHEMICAL LABORATORY.

First year:

(a) General and Inorganic Chemistry. Lectures and quizzes; two hours per week during the year.

(b) Chemical Laboratory; four hours per week during year. This course includes such experimental work as is deemed necessary to illustrate and fix firmly in mind the elements of the science. The student is required to properly perform experiments and to keep neat and comprehensive notes on all work done.

(c) The latter part of the first year is devoted to the study of the behavior of the metals before the blow pipe, and with reagents; this serves as an introduction to Qualitative Analysis, which immediately follows; the course in Qualitative Analysis offers abundant practice in the analysis of unknown mixtures, particularly bases and alloys.

Second year:

(a) Practical problems in Dental Chemistry. Lecture and quiz, two hours per week during year.

(b) Laboratory work, three hours per week during year; this course includes the refining of gold, silver and other metals, which are later employed in making dental alloy, gold and silver solder, amalgam-alloys, etc. Other practical problems include the making and study of cement, fusible metals, etc. Some practice in the assay of dental alloy for gold, silver, tin and copper is given.

(c) Organic and Physiological Chemistry; lectures and demonstrations one hour per week during the year.

(d) Laboratory work in Organic and Physiological Chemistry. Three hours per week during second semester.

Materia Medica is studied in the Second Year and will include:

A study of definitions, abbreviations, and terminology used, the nature of disease, the source of drugs in nature, preparations made from crude drugs, methods of administering medicines; agencies that modify their action; the art of prescribing; general classification of drugs; their physical, chemical and poisonous properties, dosage and antidotes, and therapeutic application.

The action of various important drugs will be illustrated upon lower animals, and a special study of antiseptics will be undertaken. Special attention is given to those drugs that are of most value in the practice of dentistry.

Special Pathology and Therapeutics is presented to the Senior Class in two lectures per week during the term.

This course will include practice of antiseptic dentistry and general considerations in the treatment of disease, hyperæmia of the dental pulp, its causation, symptoms and treatment, inflammation of the dental pulp, suppuration, infarction and death of the organ, with detailed description of treatment in different conditions and stages of disease, modes of destroying and removing the dental pulp, and the treatment and filling of root canals. The treatment of teeth presented with pulps dead and decomposed, description and treatment of apical pericementi-

tis and of the conditions leading to the formation of alveolar abscesses, with their symptomatology and the therapeutic management of this class of cases. The pathology, therapeutics and general management of alveolar abscess, both acute and chronic, the burrowing of pus among the muscles of the face and about the periosteum of the jaws, and kindred conditions.

Diseases of the peridental membranes beginning at the gingival margin (so-called pyorrhea alveolaris) receives close attention. The different forms presented by this important group of diseases is described in the lectures and illustrated by practical cases in the infirmary, and the treatment and general management of cases presenting the various characters, followed. The methods of bleaching discolored teeth will receive careful attention.

The Mitigation of Pain in dental operations receives especial attention, and the various means employed fully developed and explained, and such directions given as will enable the student to avoid methods and drugs that may be hurtful or dangerous to patients.

The infirmary clinic presents abundant illustrations of the various pathological conditions of the teeth and associate parts for the practical study of these conditions and their management, so that the observant student may become practically familiar with them.

The professor of Materia Medica will be in the infirmary clinic in personal teaching one-half day in each week, explaining personally to students the meaning of various combinations of symptoms, pointing out and explaining the underlying pathological conditions, and directing students in the application of remedies to special cases.

Experimental trial of drugs upon animals, illustrating their toxic effects, begun in the junior year, will be continued and extended in the senior year, especially those in use as local obtundants, or that exhibit poisonous properties that are in any wise dangerous to patients.

Operative Dentistry.—The senior course in operative dentistry consists of two lectures per week with quiz work for the greater part of the year. A recitation course will be conducted giving a brief review of the work done in the junior year, in the preparation of cavities and other manipulative procedures. The lecture course will be more essentially a study of dental caries, the conditions of susceptibility and immunity to caries, its modes of attack, the means of its prevention and the management of filling operations for the prevention of its recurrence; the conditions under which extension of cavities for the prevention of the recurrence of caries should or should not be undertaken, the use of tem-

porary fillings, especially for children, and the conditions necessary for permanent operations for children; the reasons for special methods in different classes of cases, and the general adaptation of operative procedures as curative and preventive measures, etc. It is intended that this shall be an advanced course in the general management of operative procedures, the foundation for which has been laid in the freshman and junior years.

The Operative Infirmary Clinic is under the direct supervision of the Professor of Operative Dentistry. The student begins this work with the beginning of his junior year, and continues it to the end of the senior year, the time given to it being much greater in the senior year. It is the intention that this infirmary practice be as much like an actual dental practice as it is possible to make it. The development of the ability to obtain and hold a practice, or that professional comity between an operator and his patients essential to personal success, is regarded as parallel in its importance to the future of the student with the development of manipulative ability. In order that they may begin at once that practice by which this ability is developed, students are urged to bring their friends and acquaintances to the infirmary as their individual patients. Such patients will always be assigned as requested and become the patients of the individual student, and collectively will constitute his individual infirmary practice.

This practice, however, is, and must be, under the direction of the demonstrators in all of its details, from the primary examination upon the entrance of the patient to the clinic room, to its completion. Of the many patients who come to the clinic room without individual preference as to operators, assignments will be made to the students who may need them for a beginning of their clinical practice or who may not have obtained a sufficient number.

The Demonstrating Force is sufficient in number to give a large amount of personal attention to each individual student, consulting with him, directing his operation in detail, and demonstrating points that may be new or difficult as they present themselves. This personal teaching is made a special feature of this school, and great attention is given by the management to the drill of the demonstrating force, in order that they may understand well their especial duties to the students and the methods of instruction adopted and maintained in the school, and that their direction and actions may be in harmony throughout their clinical teaching.

In this great clinic, embracing about three hundred patients per day,

students have the opportunity to see and to study a wonderful variety of cases. They are made up of every variety of pathological condition, from the simplest deviation from the normal to the most grave conditions. A great variety of cases of irregularity of the teeth, impacted teeth, suppression of particular teeth, retention of deciduous teeth, atrophy of the teeth and of deformities of the teeth, and of the jaws, can be seen and studied. A careful observer will be able to see more of the pathological conditions of the teeth, deformities of the teeth, irregularities of the position, etc., in this great clinic than he would observe in many years of ordinary private practice. A training of two years in such a clinic does more to fit a young man for the duties of practice than many years of ordinary office observation could do.

THE SYSTEM OF CREDITS for experience gained in clinical practice is such as to give each student a fair statement of what he has done. Instead of counting this by the number of cavities filled, great and small, the credits are awarded in points. The basis of the point is a small pit cavity in the occlusal surface of a molar, the easiest cavity to fill. In case of other and more difficult cavities the credit is given in a number of points proportionate to the difficulties of the individual case. Therefore, no matter what the difficulties of the case, or the time required, the credits for experience gained, will be in due proportion to the effort required. Hence students undertake and do all classes of cases, simple or difficult, with equal zeal.

In clinical operative dentistry, each student of the senior class is required to present a written description in detail of the conditions of the patient and of teeth requiring operation, and of the operative procedures in the preparation and filling of four cavities, two gold and two amalgam. Recent experience has shown this exercise to be a very important one to the advancement of the student.

SUMMER CLINICS.

The clinic rooms will be open all the year for the benefit of students who may wish to have greater experience in clinical practice under competent supervision. The number of demonstrators during the summer will be ample for the class that may choose to remain with the school. The clinical material is abundant and a most excellent opportunity is afforded for clinical practice.

The value and adequacy of this clinical instruction, and experience to students will be the better understood and appreciated if one realizes that according to the records of the school for the year ending

June 30th, 1905, 9,529 different patients were treated in these clinics, for whom 49,273 operations were performed in as many different sittings. They were:

42,877 in the Operative Department.
6,153 in the Prosthetic Department.
726 in Orthodontia, and
243 in Oral Surgery.

In the Operative Clinic these operations were performed:

14,398 fillings of all descriptions.
3,233 root fillings.
1,741 pulps devitalized.
1,173 pulps removed under cocaine.
922 cases abscess treated.
1,272 cases of pericementitis treated.
1,356 cases of removal of calcareous deposits.
1,752 cases of extraction.
479 cases of adminstration of anaesthetics.
81 porcelain and gold inlays.

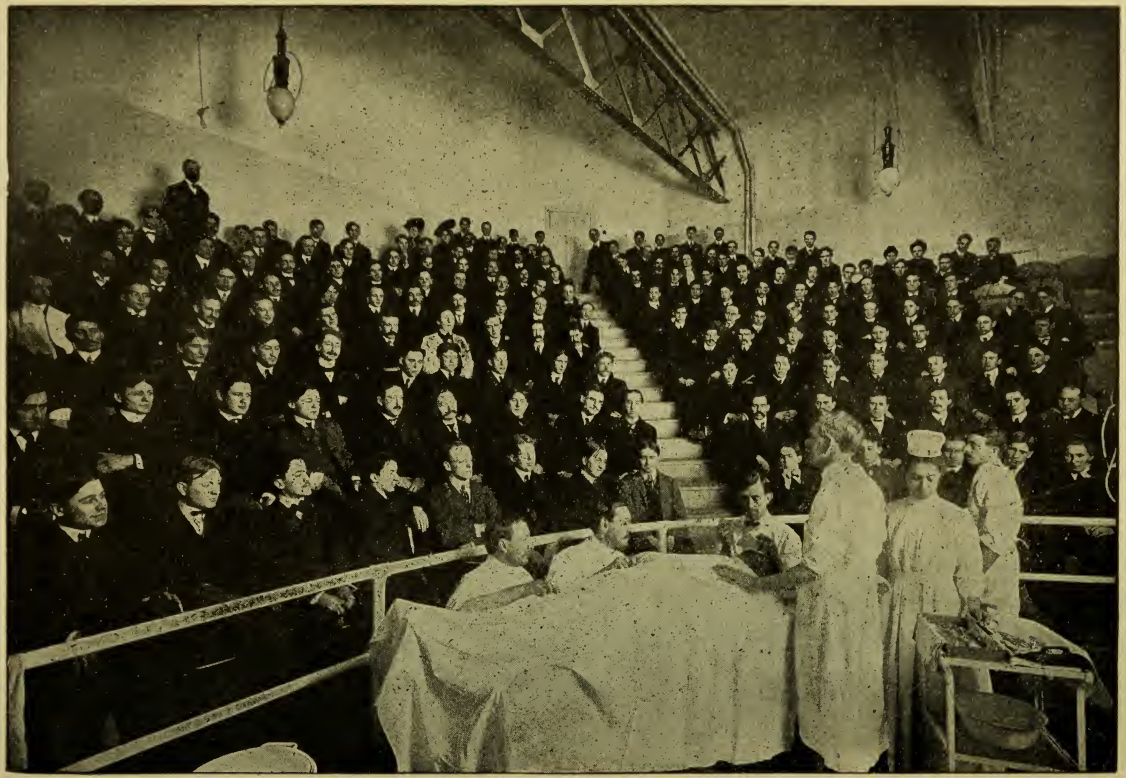
In the Prosthetic Department were made and inserted:

219	gold and porcelain bridges	797 teeth.
529	gold shell crowns	529 teeth.
185	Richmond crowns	185 teeth.
75	porcelain crowns	75 teeth
78	banded Logan crowns	78 teeth
132	plain Logan crowns	132 teeth
343	artificial dentures	1,884 teeth.
	Total teeth restored or replaced	3,680

BACTERIOLOGY.

Bacteriology is an important part of the senior course. It is presented especially in its relation to dental pathology and dental practice. The student is familiarized with the general principles of the subject, with the nature of these growths, the place they occupy in nature, their physiological processes, how and where they grow, how they live, what they do, and how they produce disease.

The micro-organisms of the human mouth receive especial attention. They are collected from patients in the infirmary and from members of the class in the lecture room, thus pointing out their natural habitat and the appearances produced by their natural growth. These are



cultivated in the various culture media, illustrating the growths as they appear to the naked eye in such ways as to illustrate the practical necessities of aseptic operating in dentistry, when and how dangers of infection arise, and how to avoid them. Species will be separated by plate culture, and pure growths of varieties obtained directly from the mixed growth gathered from patients and students. The forms of growth as they appear to the naked eye on the various culture media are studied in the lecture room and laboratory, and the microscopic characters of the organisms, plans of staining, mounting, etc., studied in the laboratory.

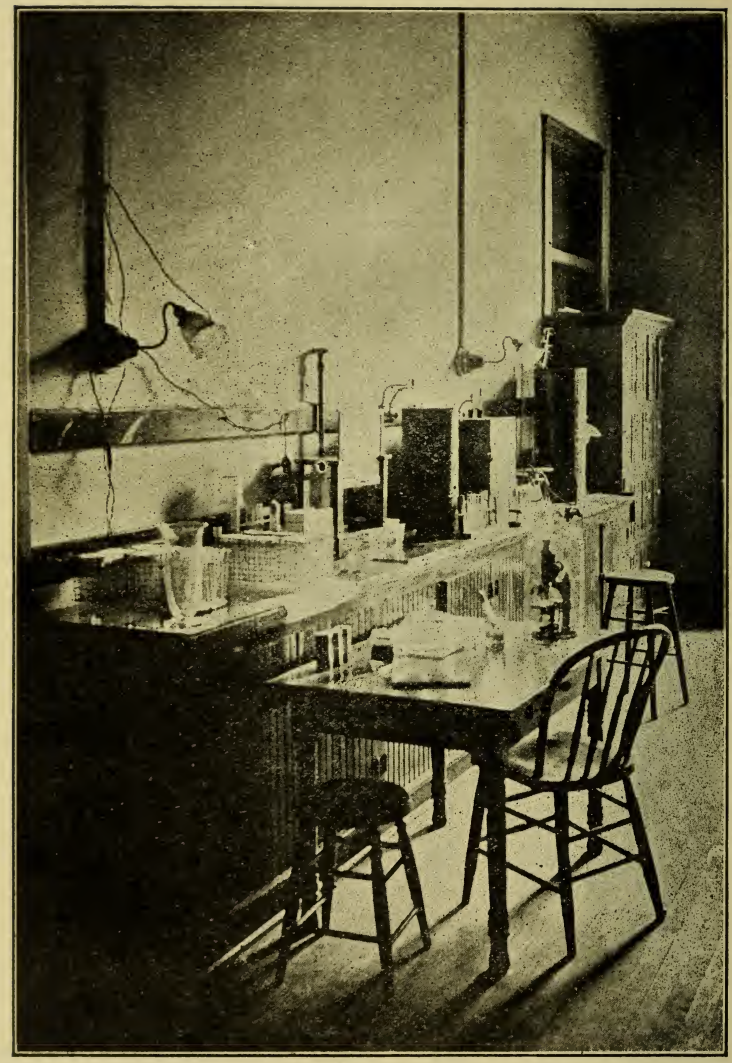
ORTHODONTIA.

Orthodontia is taught both didactically and clinically. The subject is taken up systematically, proceeding from the normal occlusion to explain the abnormal arrangements and faulty occlusion of the teeth and of the irregular forms of the dental arch. These derangements of alignment of the teeth and the malforms of the dental arch are so classified as materially to assist the student in understanding them, and the means and mechanical arrangements of fixtures to bring the several classes of irregularities into normal form, or to the best possible form in individual cases in which the normal can not be successfully reached.

In the clinical work there are often forty to fifty cases under observation and treatment at the same time, giving great opportunities for the study of clinical methods and their results. This demonstrative work will be contemporaneous with the lecture work, and all of the aids at present developed in methods of teaching this subject are in use as occasion demands. The newer features of X-ray pictures for the determination of the positions of teeth that from any cause have failed to erupt at the normal time, and for determining the position and forms of roots of teeth that are abnormally placed, are being used, demonstrating the value of this method of diagnosis in cases of special difficulty.

ORAL SURGERY.

One lecture per week, one quiz, and one clinic of one and a half to two hours per week, is given during the term. The course embraces instruction in the general principles of surgery and their practical application to pathological conditions occurring about the mouth and face, giving especial attention to diagnosis and recognition of conditions requiring surgical interference. It includes the extraction of teeth with special attention to the difficulties encountered in cases of malposed and



A view in the Bacteriologist's private laboratory.

impacted teeth, the surgical treatment of facial defects and blemishes, the surgical treatment of alveolar abscess, the treatment of caries and necrosis of bones, fractures of the jaws, including the various devices and methods of fixing and retaining fractured and displaced bones in position. The treatment of diseases of the Antrum of Highmore, the diagnosis and removal of tumors occurring about the mouth and face, the exsection of nerves in the surgical treatment of persistent neuralgias, etc.

The whole clinical course is an exemplification of aseptic and antiseptic surgery in its adaptation to, and uses in, the various phases of the surgical treatment of both accident and deliberate operative cases.

ANAESTHESIA

will be presented in detail in lectures, experimentally upon animals and in clinical illustration, embracing all of the agents used for the mitigation of pain. Nitrous oxide will be exhibited daily in the extracting clinic, and ether and chloroform in the surgical clinic.

It is especially intended that this course of instruction shall embrace those conditions which the dentist is likely to meet in his practice, not omitting careful attention to the minor surgical operations which the dentist should ordinarily do for his patients, while giving an excellent basis of instruction to those who may aspire to a practice in oral surgery in the future.

PROFESSIONAL ETHICS AND DENTAL JURISPRUDENCE

occupy one lecture per week during the first semester. It consists of a brief statement of the more important principles of morals, followed by an exposition of the special duties and moral obligations of professional men to their patients, toward their fellow practitioners, and toward the public, for upholding the honor and dignity of the profession. The more important differences between the profession and business or manufacturing pursuits will be explained with reference to the ethical standards that are right and appropriate in each. The Professor and Faculty earnestly desire that students understand and appreciate the high standard of moral quality and devotion to duty which ought to characterize all professional men.

The lectures on Jurisprudence in the main follow the text-book by Dr. Rehfuss. They include qualification and duties of expert witnesses, the importance of dental records, etc., as a means of identification, the limitations of dental practice, the qualifications required, and the liabilities incurred by those who administer anæsthetics, the penalties that

may be suffered, and the defense to be made in case of real or supposed malpractice, and the liability in case of infection from instruments; the requirements of the Illinois law and the laws of other states respecting the practice of dentistry, the steps necessary to become legal practitioners, the duties and liabilities of dentists with reference to the law, etc. This course of lectures will be followed by an examination at the end of the first semester.

SUMMARY OF STUDIES.

FIRST YEAR.

Anatomy, two recitations or lectures per week during term.
Anatomy, dissecting half of the median half of the human body.
Physiology, to Nervous System, two lectures per week.
Histology, one lecture per week.
Histology, laboratory, two hours per week.
Inorganic Chemistry, lectures and laboratory, three hours per week.
Dental Anatomy, first semester, three half days per week.
Operative Technics, three half days per week.
Prosthetic Technics, three half days per week.
Prosthetic Dentistry and Metallography, one lecture per week.
Quiz and study hours.

SECOND YEAR.

Anatomy, two recitations or lectures per week during term.
Anatomy, dissecting half of the median half of the human body.
Comparative Dental Anatomy, one hour per week.
Physiology, Nervous System, one lecture per week.
General Materia Medica and Therapeutics, one lecture per week.
Pathology, general, one lecture per week.
Inorganic Chemistry, lectures and laboratory, three hours per week.
Organic Chemistry, one lecture and three hours' laboratory work per week in second semester.
Histology, general and dental, one lecture per week.
Histology, laboratory, two hours per week.
Prosthetic Dentistry, two lectures per week.
Operative Dentistry, two lectures per week.
Prosthetic Dentistry, laboratory and infirmary practice.
Operative Dentistry, technics and infirmary practice.
Quiz and study hours.

THIRD YEAR.

Dental Pathology, two lectures per week.
Oral Surgery, one lecture per week.

Oral Surgery Clinics, two hours per week.
Oral Surgery, quiz one hour per week.
Orthodontia, one lecture per week.
Orthodontia Clinics, three hours per week.
Dental Jurisprudence and Ethics, about ten lectures.
Prosthetic Dentistry, one lecture per week.
Prosthetic Dentistry, laboratory and infirmary practice.
Bacteriology, one lecture per week, first semester.
Bacteriology, laboratory, two hours per week.
Operative Dentistry, two lectures per week.
Operative Dentistry, recitations, two hours per week.
Operative Dentistry, infirmary practice.
Quiz and study hours.

TEXT BOOKS.

FIRST YEAR.

Anatomy—Cunningham.
Dental Anatomy—Black
Technical Procedures in Filling Teeth.—Black.
Prosthetic Dentistry—Prothero.
Physiology—Kirkes.
Chemistry—Hall, Remsen.
Histology—Bailey.
Medical Dictionary—Duane, Gould, Thomas.

SECOND YEAR.

Anatomy—(Same as first year.)
Technical Procedures in Filling Teeth—Black
Prosthetic Dentistry—Prothero.
Physiology—Kirkes. (Same as first year.)
Materia Medica—Hare.
Chemistry—Hall, Remsen.
Comparative Anatomy—Thompson.
Histology—Bailey, Noyes.

THIRD YEAR.

Technical Procedures in Filling Teeth—Black
Operative Dentistry—Black.
Prosthetic Dentistry—Prothero.
Oral Surgery—Gilmer, Marshall.
Orthodontia—Angle, Guilford, second edition.
Special Materia Medica—Hare.
Dental Jurisprudence—Rehfuss.

Micro-Organisms—Black, Abbott.

REFERENCE BOOKS.

American System of Dentistry.
Crown and Bridge Work—Evans.
Diseases and Injury of the Teeth—Smale and Colyer.
Principles of Surgery—Senn.
The American Text-Book of Prosthetic Dentistry—Essig.
The American Text-Book of Operative Dentistry—Kirk.
Micro-Organisms of the Human Mouth—Miller.
Micro-Organisms—McFarland.
Dental Pathology and Pharmacology—Burchard.
Oral Surgery—Garretson.
Long's Chemistry.
Comparative Dental Anatomy—Tomes, Thompson.
Regional Anatomy of the Head and Neck—Eckley.
Anatomy—Morris, Eckley.
Histology—Piersol.

INSTRUMENTS.

The instruments essential to the students in the several departments of the school have been carefully studied and determined. Much care has been bestowed upon the selection of the instrument sets that the variety of forms may be sufficient for the student's needs without being excessive. Close study of this subject and long and careful observation of students and the progress they make in the attainment of manipulative skill show their progress to be so closely related to their instrument equipment that this school must demand that the instrument sets *required* be obtained by each student as a condition of his continuance in school work.

In operative dentistry it is found that a close adherence to the formula plan, in the study of cutting instruments particularly, is essential in teaching the important subject of cavity preparation; and this will be carried out critically in all departments of the school. This teaching is begun in the technic classes, and the same lines of instruction are followed progressively by teachers and demonstrators in all of the departments to the end of the Senior year, the same instrument sets being used throughout the course of study.

In prosthetic dentistry and in the several laboratories a similar care as to instruments is maintained.

The instruments in the list are *required* because they are essential to the student's progress, and students must provide them. *Students should not bring with them, nor purchase, instruments of other pat-*

terns, for they can not be received as equivalents of the required sets. They are the same as those required last year. No student is required to make changes in his instrument sets during his three years' course. *The instrument lists will be furnished on application.*

WRITTEN QUIZZES AND EXAMINATIONS are held by the various professors at intervals during the course, and especially at the end of the first semester. A few of these latter, especially in those lecture courses which terminate with the first semester, are final examinations and a few others are final upon the subjects passed over. But, for the most part, they take form of written quizzes as an educational exercise and for determining the progress being made by the classes as a whole, and by the individual student. Past experience has shown that the written quiz is of great value to the student as a training in the formation of his ideas and in pointing out the particular lines of his strength or weakness and guiding him in his further studies.

The monthly reports of attendance, and the standing of pupils in quizzes, recitations, laboratory work and in infirmary practice, both operative and prosthetic, are considered in making up the rating upon final examinations.

The final examinations are held at the close of the term.

REQUIREMENTS FOR ADMISSION.

Conformably to a rule of the National Association of Dental Faculties, the officers of dental schools are not permitted to conduct examinations for the admission of students. All such examinations are required to be made by the legally constituted officers of instruction of the locality in which the applicant resides, or by the State Superintendent of Instruction or his deputy. Therefore, students desiring to matriculate in this school must bring with them credentials signed by a County or City Superintendent of Schools, a Principal of a high school or the State Superintendent of Instruction.

For the present year, beginning with October 3rd, the applicant for matriculation must show, by proper credentials, that he has completed the second year of high school, or that he has an education equivalent to this. Diplomas from high schools or colleges will be received without the requirement of further credential.

Beginning with October 1906-7, only such matriculants will be received as are graduates from an accredited high school, or have an eduactional equivalent of such graduation, to be certified in the same manner as above stated.

Beginning with October 1907-8, this school, in common with the other Chicago dental schools, will demand graduation from a high school having a four years' course, or an equivalent education, which may be determined on the count system.

Therefore, the year 1905-6 will be the last in which candidates having only a two years' high school education or its equivalent can be received as dental students.

No student can be received who is not present within ten days after the opening day as announced in the Bulletin, or in case of sickness, certified to by a regular physician, within twenty days of the beginning of School.

ADMISSION TO ADVANCED STANDING.

Students who present certificates of having taken courses in other recognized dental schools which cover subjects required in this school will be credited with such studies if satisfactory to the dean and professors in the respective departments. Graduates in medicine will be credited with one year's time.

Students who present credentials from reputable schools, medical, scientific or literary, for work done in branches taught in this school covering these fully or in clearly definite part, may receive credit for work done in these subjects.

Such credentials shall express the hours of didactic work with grades, or the hours and character of laboratory work with notebooks, whenever notebooks have been employed.

This school will receive no student who is not present within ten days after the opening day, as announced in the BULLETIN, or in case of sickness, certified to by a physician, within twenty days of the beginning of school.

Students matriculating in this school, by doing so agree to accept the discipline imposed by the faculty.

It is desirable that students should matriculate early, inasmuch as the order of assignment of seats is based upon the order of time in which they matriculate.

REQUIREMENTS FOR GRADUATION.

The Degree of Doctor of Dental Surgery is conferred on such students as complete the course of instruction, having attended the required courses of lectures, the last of which must be in this school, and passed satisfactory examinations in all the subjects of study. To

be admitted to the degree the student must be twenty-one years of age and possess a good moral character. He must have paid all fees in full.

The monthly reports of the quizzes and the infirmary practice of the students will bear very materially upon their standing at all examinations.

THE CURRICULUM

covers a course of three years. Each year will consist of thirty-two weeks, with six days of teaching in each week, not counting holidays or vacations. The number of days of teaching in this course is the full equivalent of the four years' of seven months each course, formerly adopted by the National Association of Dental Faculties, which was abandoned by it at St. Louis in July, 1904. While the calendar time is shortened by an entire year, the full curriculum outlined in the four years' course will be carried out, by reason of the amount of added time in each year of the three years' course as now arranged.

The National Association of Dental Examiners have approved of this course and have placed this school upon its list of accredited schools which will be recognized as reputable and of proper standing by the various State Examining Boards.

EXPENSES FOR TUITION AND FEES.

In force for the school year 1905-6.

FIRST YEAR (FRESHMAN.)

Matriculation Fee	$ 5.00
General Ticket	150.00

SECOND YEAR (JUNIOR.)

Registration Fee	$ 5.00
General Ticket	150.00

THIRD YEAR (SENIOR.)

Registration Fee	$ 5.00
General Ticket	150.00

A general breakage fee of one dollar will be required to be paid by each student in each year.

All fees are payable at the beginning of the school year, but students who prefer to do so may pay one-half of the general tuition fee, namely, $75.00, on or before October 20, 1905, and one-half, namely, $75.00, on or before January 20, 1906.

Whenever a deferred payment is acceded to by the school, the accom-

modation and trouble involved will be charged for. Variation from these conditions of payment can only be made upon the written agreement of the proper official.

There will be no return of fees by reason of suspension or expulsion.

All remittances or payments should be made to the order of the Secretary of Northwestern University Dental School.

Good board and rooms convenient to the school can be obtained at prices varying from $3.50 to $5.00 a week, according to the accommodations; also vacant rooms, without board, furnished or unfurnished, can be obtained at from $6.00 to $10.00 per month.

For further information and other literature relating to the Dental School address

Secretary of the Dental School,
Northwestern University Building, corner Lake and Dearborn Streets,
Chicago, Ill.

Textbooks will be on sale in the Theodore Menges Library of the school at publishers' prices. There will be a small profit from the sale of these books which will be used for the benefit of the library. Students are invited to purchase their books in the school and aid the library.

THE THEODORE MENGES LIBRARY AND MUSEUM.

The Library and Museum of the Dental School will hereafter be known as the *Theodore Menges Library and Museum*, in honor of the late Dr. Menges, who did so much to build up Northwestern University Dental School and to whom this Library was especially dear.

This Library and Museum with its reading room will be maintained for the benefit of the students of Northwestern University Dental School and for the whole dental profession.

It is intended that this Library shall serve the purposes not only of the School, but also of the dental profession at large, and all members of the profession are cordially invited to make use of its facilities.

To further the interests of the Library and Museum and render it more valuable to our students and the general profession, we ask donations of old books and magazines of every kind pertaining to dental subjects; (the older these are the more valuable to the Library) in order that we may render it more complete. There are many old books out of print, and which can not be purchased, in the hands of dentists

who do not especially care for them, that would become very valuable to this Library.

Specimens of Abnormal Teeth of every kind are wanted, every one of which will contribute to the completeness of this feature of the Museum. These, if sent to us, will be mounted, placed in the cases, properly labeled and classified, and become permanent additions of interest.

It is the intention that this Library and Museum be continually growing, both by purchase and by contributions, until it shall become the most complete store of recorded knowledge of dental subjects in the country, and that the dental profession of the great Northwest shall have in it a common interest.

All books and specimens donated to the Library or Museum will bear the donor's name on the label.

The Academy of Northwestern University.

To students pursuing studies preparatory to the Dental School, the Medical School or the School of Pharmacy, this Academy, located at Evanston, twelve miles from Chicago, offers peculiar advantages for special instruction in Physics, Botany, Chemistry, Manual Training, Mathematics, Civics, History, English Literature and Composition, and the Latin, German, French and Greek languages; Manual Training and the Sciences are taught in completely equipped laboratories.

For special circulars address,

Principal of the Northwestern University Academy,
Evanston, Ill.

THE ALUMNI ASSOCIATION OF NORTHWESTERN UNIVERSITY DENTAL SCHOOL.

OFFICERS FOR 1905-1906.

President—Fred W. Parker, D. D. S., 6249 Kimbark Avenue, Chicago.

First Vice-President—Thomas B. S. Wallace, D. D. S., 5501 South Halsted Street, Chicago.

Second Vice-President—J. W. Phillips, D. D. S., Austin, Minn.

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Treasurer—Arthur C. LaTouche, D. D. S., 503 West Sixty-third Street, Chicago.

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EDITORIAL STAFF OF NORTHWESTERN DENTAL JOURNAL.

Dr. G. V. Black, *Supervising Editor.*
Ralph W. Parker and Fred W. Parker, *Editors.*
J. H. Prothero, F. B. Noyes, Elgin MaWhinney, A. D. Black, I. B. Sellery, E. E. Copple, E. M. Jolly and E. A. Werner, *Associate Editors.*
Fred W. Gethro, *Business Manager.*

The Annual Clinics will be held Tuesday, January 16, 1906, at the University Building.

It shall be our effort through the medium of the Journal to arouse a keener interest among the members of our Association, and to get as new members those of our graduates who in the past have not joined.

The members of the Association are requested to send in material of interest to readers, and the Journal will serve also as a medium for the exchange of friendly greetings. A new interest will be aroused and even better work done and more accomplished by our Association than in former years.

All members of the Association in good standing will receive the Journal and the payment of their dues annually, which is but fifty cents a year, will entitle them to the Journal gratis.

Any graduate of Northwestern University Dental School may become a member of the Alumni Association upon payment of the membership fee of one dollar, and fifty cents annually, the subscription price of the Journal.

It is hoped that the Alumni will heartily support this undertaking and cooperate with the officers of the Association and the Journal staff in making our official publication a grand success.

For any information address the secretary,

Geo. B. McFarlane,

Room 406, 70 State Street, Chicago, Ill.

THE YOUNG MEN'S CHRISTIAN ASSOCIATION.

The Young Men's Christian Association of Chicago has established a branch which carries on work in the three Schools in the University Building. In addition to its religious work, the Association is of service to the students in many ways. In the pleasant rooms, placed at its disposal by the University, the Association maintains a very popular social center with a well selected list of reading material, several games and a piano. Throughout the year the list of rooms and boarding places is kept for the use of students in settling in the city.

A number of positions are at our disposal annually that give students an opportunity to earn their room and board by waiting on table, etc. Request for same must be accompanied by recommendations.

All students are inviteed to make the Association rooms their headquarters during the year. As far as possible new students will me met at the train by an Association man wearing a badge. Those desiring to be so met will please write a few days in advance to Y. M. C. A., Northwestern University Building, Chicago, indicating clearly on what train they are to reach Chicago and over what road they are to come.

SENIOR ROLL, 1904-5.

Adamson, John August, *Minn.*
Allen, Samuel Arthur, *Iowa.*
Amiot, George Benoni, *Mass.*
†Bade, Alvin Arthur, *Wis.*
†Baikie, Ellis Jay, *Ill.*
*Barker, John Pierce, *Ill.*
Beach, Clayton Lyman, *Iowa.*
Beardslee, John Willis, *Ill.*
Bettis, Robert Stewart, *Ala.*
Blass, Edwin John, *Wis.*
Blome, Albert Herman Adam, *Ill.*
Bowe, John Hamilton, *Ill.*
Bower, L. Roy, *Neb.*
Boyington, Charles Barker, *Ill.*
Briggs, Clarence Edwin, *Wash.*
Briscoe, Edgar Hall, *Mo.*
Bristow, Roscoe, *Ill.*
Bronson, Jesse Lyman, *Iowa.*
Brown, Hilles Talley, *Ill.*
Brown, Leonard Granville, *Ohio.*
Brown, Thomas Wilson, *Ill.*
Buckley, Clarance Roy, *Iowa.*
Burns, Frank Donald, *Iowa.*
Carrington, Walter Rainey, *Texas.*
Cassell, Carlos Leonardo, *Ill.*
Cassill, Owen Elmer, *Ohio.*
Chadwick, Claude Cecil, *Can.*
‡Chinberg, Harry Sigfrid, *Minn.*
Clark, Robert Lane, *Iowa.*
Clendenen, Robert R., *Ill.*
Colby, Winfield Horace, *Mich.*
Collins, Joseph Hickman, *Ill.*
Conklin, Bishop Albert, *Ill.*
Corey, Mrs. Alice, *Kan.*
Covalt, Scott, *Iowa.*
‡Crawford, William Nathan, *Wash.*
‡Crose, Alphonso Charles, *Iowa.*
Crouse, Roy Morton, *Iowa.*
Crume, Everett Lodowick, *Mich.*
Curran, John James, *Iowa.*
Daly, James William, *N. Y.*
Danek, David Hill, *Ill.*
†Dietz, Oscar, *Wis.*
Diffenbacher, Ernest John Hitt, *Ill.*
Dillingham, Roy Vance, *Mich.*
Dixon, Frank Leslie, *Iowa.*
Dixon, Mabel, *Neb.*
Donovan, John Joseph, *S. D.*
Downey, Joseph Murray, *Ill.*
Duffell, Harold Wallace William, *Aust.*
Dunkle, Chester Silas, *Iowa.*
Eastman, Loren Starke, *Wash.*
Ellis, Carson Elwood, *Wash.*
Eveleth, John McDonald, *Iowa.*
Fay, Herbert Macon, *Ill.*
Fellman, Albert Frederick, *Ill.*
Fiebig, William Frederick, *Ore.*
Fox, Willard Harry, *Ill.*
Fritz, Frederick Sanderson, *Mich.*
Gatons, John Joseph, *Ill.*
Gibson, Will Warren, *Mich.*
Giles, Percy Osborne, *Ill.*
Gilmore, Thomas Edward, *Can.*
Gowdy, H. LeRoy, *Iowa.*
Grant, James Clinton, *Ill.*
Gurley, Frederick George, *N. Y.*
Hamman, Henry Howard, *Mich.*
Harper, Alfred James, *Ill.*
Haury, Arthur Otto, *Kan.*
†Heath, Fred Erwin, *Mich.*
Heins, Oscar Edward, *Mo.*
Hendrickson, Charles Augustus, D. V. M., *Ill.*
Higby, Francis Marion, *Iowa.*
Hinckley, Carl Asa, *Mich.*
Hollem, Elmer Hugo, *Ill.*
*Houston, Robert Edgar, *Ill.*
Hull, Warren Kendall, *Ind.*
Hutchinson, Leonard Emanuel, *Wash.*
Irwin, William Wallace, *Can.*
Jackson, Bertram, *Can.*
James, Edward Watkins, *Neb.*
Jennings, Raleigh Arthur, *Ill.*
Jensen, Ole Jörgen, *Wash.*
Johnson, Albert Nellon, *Wis.*
Jones, Harvey Vilelle, *Mo.*
Juul, Axel Joab, *Minn.*
†Kadel, Leroy L., *Ill.*
Kagy, Joseph Rodney, *Ill.*
Kallander, David, *Ill.*
Kallner, Rebecca, *Germany.*
Kalman, Abraham Harry, *Ill.*
Kane, William Thomas, *Wis.*
Keppel, Christian Wilhelm, *Ohio.*
Kerch, Kent, *Ill.*
Knecht, Frederick Cassius, *Ill.*
Kocher, William, *Ill.*
Kohler, Walter William, *Neb.*
Kriebel, Emil Friedrich, *Germany.*
Kuyper, Cornelius A., *Mich.*
LaBounta, Forrest Palmer, *Ill.*
Lafount, Arthur Charles, *Utah.*
Lambach, Hugo Charles, *Iowa.*
Lane, Jesse Pitzer, *Ill.*
Larkin, William Francis, *Ill.*
Leckie, David Garnet, *Can.*
Lee, Gilbert O., *N. D.*
Leverton, Elmer Richard, *Ind.*
†Lobeck, William Henry, *Minn.*
Lohnbakken, Olaf, *Minn.*
Louderback, Andrew Vachel, M. S., *Ill.*
Lowes, George Geoffrey, *Can.*
Lowry, Hallett Emmett, *Mich.*
Luetscher, George Benjamin, *Wis.*
Lupton, Leslie Arthur, *Iowa.*
*Lyle, Arthur Garfield, *Mich.*
McCann, George Christopher, *Ill.*
McCulloch, Archibald Lewis, *Minn.*
McCulloch, Thomas Herbert, *Idaho.*
McDonald, Harry LeRoy, *S. D.*
McGovern, Thomas Henry, *Wis.*
McGuigan, Vincent Alexis, *Iowa.*

*Matriculated, but not in attendance.
†Did not complete course.
‡Conditioned on time.

McKechney, Daniel Herbert, *N. D.*
McRae, Archibald Angus, *B. C.*
Maas, Leonard Milton, *Ill.*
Macdonald, Philip Frederick, *Ill.*
Mahaffy, William James, *Ill.*
Mailer, Harry Orlady, *Ark.*
Malkin, Louis Ernest, *Ill.*
Manchester, LeRoy B., *Wash.*
Mann, William Tanner, *Tenn.*
Mason, Clarence Lee, *Ind.*
Maxwell, George Henry, *Ill.*
Medsker, Ora Levertia, *Ind.*
Meek, William Gardner, *Mich.*
Mendenhall, Frank Cary, *Wash.*
Merritt, Milfred Isaac, *Colo.*
*Miller, Agnes O'Byrne, *Ind.*
Miller, John B., *Wis.*
Mills, Rollin Virgil, *Iowa.*
Moe, William James, *Wis.*
Monteith, Ernest Bedford, *Can.*
Moore, Francis Asbury Beall, *Ill.*
†Morey, Frank Huffer, *La.*
Morrison, John Francis, *Can.*
Morse, Charles Lawrence, *Ind.*
Muir, William Wallace, *Iowa.*
Murphy, Artemas Ward, *Iowa.*
Myer, William Lindley, *Ill.*
Mylroie, William Garfield, *Wis.*
Nally, Enos Clifton, *Mo.*
Nelson, George Albin, Jr., *Ill.*
*Newcomb, Charles B., *Mich.*
O'Connell, John Joseph, *Ill.*
O'Hara, Matthew Martin, *Ill.*
Olafsson, Olaf J., *Ill.*
‡Omsberg, Charles Sirenes, *Ill.*
Parker, John Walter, B. S., *Texas.*
Parks, James Franklin, *Tenn.*
Paschal, Karl B., *Iowa.*
*Patterson, Glenn Scott, *Mich.*
‡Percival, Franklin Robert, *Ill.*
Peroutky, John Wenzel, *Wis.*
Persinger, Ava Carl, *Ind.*
Phelps, Edgar Burns, *Cal.*
Phillips, Lee Albert, *Minn.*
Plaxton, William Henry, *Can.*
Plummer, Perry Haskell, *S. D.*
Porter, Harley Jay, *Iowa.*
Porter, Mrs. Helen Kerns, *Ark.*
Powers, S. Birney, *Wis.*
Prideaux, Oscar Charles, *Wis.*
Prouty, Edward A., *Wis.*
Redmond, William Glenn, *S. D.*
†Reid, William Alexander, *S. D.*
Renno, Henry John Andrew, *Pa.*
Reynolds, Thomas Francis, *Ill.*
Rice, Thomas Lester, D. V. M., *Ill.*
†Richards, Walter Harold, *Iowa.*
Riley, Daniel Howard, *Ill.*
Riley, Harbin Septer, *Ill.*
Risinger, Ira Henry, *Mich.*
Roberts, Milo Charles, *Iowa.*
Robinson, Fred Mac, *Mich.*
Samson, William Roy, *Iowa.*
Sargent, William Enoch, *S. D.*
Sawyer, Frank Lyman, *Iowa.*
Scharff, Ferdinand Hulbert, *La*
Schnaidt, Edward J., *S. D.*
*Schwenker, William Fred, *Iowa.*
Scovel, Robert Morris, *Iowa.*
*Sengpiel, William John, *Wis.*
Sherman, Leigh Watts, *Minn.*
†Shumaker, Frank Mead, *Ill.*
Siverling, George Earl, *Iowa.*
Small, Frank William, *Wash.*
Smith, Charles Edgar, *Ill.*
Smith, Harold Slayton, *Wis.*
Smith, Harry Oscar, *Ill.*
Somerville, David MacCoil, *Can.*
Soukup, Joseph Edward, *Iowa.*
Sprague, Harry Albert, *Mich.*
Stark, Walter, *S. D.*
Stenberg, Nels Ludvig, *Mich.*
Stenz, William Henry, *Wis.*
Stewart, William Curtis, *Ill.*
Stimson, Henry Symes, *Minn.*
Stiner, Melvin Menroe, *Neb.*
*Stowell, Clayton Frank Bloomfield, *Mich.*
Street, Charles Abraham, *Australia.*
Swain, Earl Glenn, *Ill.*
Taylor, George Wesley, *Can.*
Teitgen, August Hubert, *Wis.*
Tellman, Garrett Henry, *Mich.*
Thomas, Rees Lewis, *Minn.*
Thorsness, Gilbert Clemence, *Wis.*
†Timmis, Joseph Frank, *Ill.*
Traveller, Teel Dow, *N. D.*
Trythall, John, *S. D.*
Uglow, Charles Malcolm, *Can.*
Unbehaun, Elmer C., *Iowa.*
Unland, Theodore Howard, *Neb.*
Uttech, Otto Christian, *Wis.*
Viersen, Leo Andrew, *Iowa.*
Walsh, Thomas John, *Ind.*
Washburn, Harvey Benson, *Minn.*
Weaver, Clarence Kinne, *Iowa.*
Webster, Charles Joseph, *Ill.*
Weir, Robert Andrew, *Can.*
Wesley, Rolland DeWitt, *Iowa.*
West, Arthur, *Kan.*
West, Frederick Victor, *Can.*
Whiting, Carl Edward, *Minn.*
Wight, Holland Ernest, *Utah.*
Williams, Thomas Earl, *Iowa.*
Willson, Clarke Mills, *Minn.*
‡Wilson, John Thurman, B. M., *Ill.*
Woodworth, Charles Raphfield, *Kan.*
Wriglesworth, Walter John, *B. C.*
Wyman, Mattie Karn, *Minn.*
Yackel, Edward Wilson, *Wis.*

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*Matriculated, but not in attendance.
†Did not complete course.
‡Conditioned on time.

SPECIAL STUDENTS.

Fuchs, Hans, M. D., *Austria.*
Pegg, William Austin, D. D. S., *Pa.*
Shuttleworth, Thomas, *Australia.*
Spitzer, Martin, M. D., *Austria.*

JUNIOR ROLL, 1904-5.

Agern, Arthur Cornelius, *Minn.*
Alm, Gustav Theodore, *Mich.*
Anderson, Bert Golbern, *Iowa.*
Ashley, Edward Holbrook, *Ill.*
Barke, Owen Seward, *Minn.*
Barnett, Torrence Dawson, *Ohio.*
Baumgartner, Walter John, *Iowa.*
Bertelson, Elmer, *Minn.*
Best, Herbert Floyd, *Mont.*
*Bible, Walter Lee, *Wis.*
Bloomenstiel, Mose Frank, *La.*
Bovik, Roley, *Ill.*
Bronstein, Benjamin Joseph, *Wis.*
Cardy, Charles Arthur, *Ill.*
Case, Charles Milton, *Ill.*
Christianson, John Frederick, *Utah.*
*Clark, Howard J., *Mo.*
Close, Ira Enis, *Ill.*
†Close, Ralph Edward, *Ill.*
Conklin, Wilber Rosco, *Ill.*
Crary, Elisha John, *Iowa.*
Crook, Walter Forest, *Iowa.*
Davis, William Henry, *Ill.*
Donohue, Edward Joseph, *Mich.*
Eisenstaedt, Joseph, *Ill.*
Erickson, Alfred, *Ill.*
Ford, Zach. Daniel, *Tenn.*
Frey, Joseph Peter, *Iowa.*
Furby, Howard John, *Ill.*
Galbraith, Henry Levant, *Minn.*
Gatewood, Robert H., *Neb.*
Giffen, Bert Bennett, *Wis.*
Gilbert, William Franklin, *Wis.*
Hall, Frank Burtrand, *Mont.*
Haynie, George Edward, *Ill.*
Holmes, Harry Lowell, *Iowa.*
Hunt, Winford Aldrich, *Ill.*
*Jardon, Fred. B., *Iowa.*
Kennedy, Angus Joseph, *Can.*
Kerr, Charles Henry, *S. D.*
Krueger, Louis Frederick, *Iowa.*
Lawson, Frederick S., *Wis.*
Lehrbach, Leslie Nickalos, *Wis.*
Leisman, Harry Robert, *Minn.*
Lieberthal, Charles Philip, *Ohio.*
Light, William, *Ill.*
Lowe, John Osmer, *Idaho.*
Lyons, Henry Edward, *Ill.*
McKenna, Charles Wermor, *Neb.*
McKibbin, William Harvey, *Ill.*
Mahoney, Peter, *Australia.*
Mann, Agnes, *Germany.*
Mercer, Robert J., *S. D.*
Miller, Verne Agassiz, *Ind.*
Mohan, Joseph Francis, *Ill.*
Moore, Osmond Stanley, *Australia.*
Murray, James Edward, *Colo.*
Ogilvie, Robert Adam, *N. D.*
*Olson, William Andrew, *Minn.*
Partridge, Benjamin Sherwin, *Wash.*
Peach, Lyulph, *Australia.*
Peisley, William Shirley, *Australia.*
Pelton, Lewis Arthur, *Ill.*
Plew, Clifford, *Ind.*
Puffer, George Robert, *Ill.*
Reynolds, George Ford, *Ind.*
Richards, Colonel Melzar, *N. Y.*
Russell, Frank Leo, *Ill.*
Sawyer, Joy Clarence, *Mich.*
Schmuck, Emil Albert, *Minn.*
Schroeder, George M., *Iowa.*
Scobee, Ernest Linwood, *Ill.*
Seabert, Charles Pierce, *Iowa.*
Searl, Charles Luther, *Ill.*
Sheffield, John Edgar, *Ohio.*
Shuford, Thomas Eaton, B. S., *Miss.*
Spicer, Samuel Sherman, A. B., *Iowa.*
Stephens, Earl Glennwood, *Ill.*
Teitgen, Walter E., *Wis.*
Tilden, Julius Fred, *Iowa.*
Topliff, Ray Frank, *Iowa.*
Tyler, Earl Carlton, *Mich.*
Vinje, Eivin, *Minn.*
Walther, Arthur Frederick Wm., *Ill.*
Weeks, Frederick Theodore, *Wis.*
Weyer, Charles Nicholas, *Minn.*
White, David Nichol, *Utah.*
Wood, Nathaniel Clark, B. S., *Ind. Ter.*
Wright, Weston Wilmot, *Canada.*

FRESHMAN ROLL, 1904-5

Bartle, Henry Edward, *Conn.*
Bast, Edward John, *Minn.*
Baur, Ermin Peter, *Ill.*
Bell, Charles Edgar, *Ind.*
Bersing, Arthur E., *Wis.*
Bloom, Abraham, *Ill.*
Bolton, Richard Mark, *Canada.*
Bolzell, Charles E., *Wis.*
*Booth, Ralph, *N. Y.*
Bressler, Arthur Malcolm, *Ala.*
Brockman, Marion Cline, *Ill.*
Bushnell, Archie Dennis, *Wis.*
*Campbell, George Madder, *Canada.*
Carroll, William Preston, *Ill.*
Casler, John Maynard, *Ohio.*
Cassell, Moses Anthony, *Ohio.*

*Matriculated, but not in attendance.

†Did not complete course.

Chappuie, Gordon, *Minn.*
Concklin, Lewis Knapp, *Wis.*
Conley, Willard Thomas, *Iowa.*
Cook, Orra Ivan, *Iowa.*
Courtice, Oliver J., *Canada.*
Cox, Nicholas W., *Ill.*
Danforth, Edward Roscoe, *Ind.*
Davis, William James, *Wis.*
*DeMay, Rollo O., *Neb.*
*Dierks, William John, *Ohio.*
Donovan, John M., *Iowa.*
Drake, Don Delbert, *Iowa.*
*Dunovsky, Frank, *Wis.*
Earley, William F., *Ill.*
Fisher, Dorsey D., *Ohio.*
†Ford, John Hurschel, *Tenn.*
Forsyth, John Elder, *Australia.*
Foster, Ota F., *Ill.*
Frankel, James D., *Ill.*
Fry, William Thomas, *Ill.*
†Gloeckner, Alexander Charles, *Ill.*
Gordon, David J., *Ill.*
Grossman, Morris, *Ill.*
Hamm, Stanley Clark, *Canada.*
*Haworth, James Leslie, *S. D.*
Heap, George Roy, *Ill.*
Heisler, William F., *S. D.*
Hess, Albert C., *Ill.*
Johnson, Alvin Fabian, *Ill.*
Johnson, James Edward, *Wis.*
Johnson, Lawrence Raymond, *Ill.*
Jones, Orlando Van Duezen, *Ill.*
Jones, Ramon, *Ill.*
Kauffman, John Calvin, Jr., *Wis.*
Kelley, Boyd Longwell, *Mich.*
Keyes, John August, *Ill.*
Keyser, Dixon Baker, *Ohio.*
Kimball, George Goodykoontz, *Ill.*
Kindt, Herbert Paul, *Ill.*
Kingsley, Austin Cain, *Ill.*
Koenig, August C., *Ill.*
Kohagen, John Benjamin, *Minn.*
Lawver, Harry Edward, *Ill.*
Lee, Arthur Brush, *Mich.*
*Leverton, John H., *Ill.*
†Lewis John James, *Australia.*
Long, J. Harding, *Ill.*
Longwell, Ralph Elliott, *Pa.*
*Luke, George Gibson, *Iowa.*
McBroom, Samuel, *Minn.*
†McGuigan, Thomas Francis, *Iowa.*
*McGuire, Francis Alfred, *Canada.*
McKechney, Norman P., *N. D.*
McKenna, Daniel W., *Ill.*
McLaren, Arthur Charles, *Ill.*
†Mabbs, Ray Spencer, *Mich.*
Mason, William Charles, *Ill.*
†May, John Edward, *Ill.*
Metcalfe, Frank, *Wis.*
†Miller, Alfred, *Ill.*
Miller, Jacob, *Ill.*
Miller, Theodore, *Wis.*
Mills, Henry Louis, *Mont.*
Mitchell, Harry Chandler, *Ill.*
Mitten, Charles Louis, *Ind.*
Myers, Cyrus A., *Ind.*
Myles, Andrew Watson, *Canada.*
Norris, Luke Leo, *Iowa.*
Norwood, William, *Minn.*
*Oldham, Clarence E. B., *S. D.*
Olson, Axel Frank, *Minn.*
Owens, Richard E., *Idaho.*
Pailthorp, Arthur Westcott, *Mich.*
Pfeiffer, Carl Elmer, *Minn.*
Phillips, Arthur Abraham, *Ill.*
Rasch, Christian Albert, Ph. G., *Ill.*
Reid, William Edmund, *Mich.*
Rice, Ora Ray, *Wis.*
Rightman, Simon M., *Ill.*
Root, Bert Prestion, *Minn.*
Ross, Albert Taylor, *Ill.*
*Sanquist, Carl Ebbenheart, *Ill.*
Savage, Charles Sumner, *Ill.*
Schmook, Theodore, Jr., *Ill.*
Schott, Ralph A., *Ohio.*
Schultze, Louis, *Ill.*
†Schurig, Robert Roy, *Ill.*
Scranton, Harmon Stuart, *Mich.*
Sedwick, Harry L., *Ill.*
Smith, Harry Alexander, *Ill.*
Sommerville, George B., *Mich.*
Spearman, Kelley R., *Ark.*
Squires, William Alonzo, *Utah.*
*Stiehm, Paul Edward, *Wis.*
Stowe, Edward Eugene, *Ill.*
*Tebbutt, Charles Albert, *Canada.*
Thompson, George Augustus, *Ill.*
*Voigt, Willis A., *Ohio.*
Waggoner, Lacy E., *Ill.*
Waite, Earl Elmont, *Neb.*
*Watts, Ernest D., *Ill.*
Wehrheim, John Lawrence, *Ill.*
†Weinstein, William, *Ill.*
Wilder, Joel Osgood, Jr., *Cal.*
Winbery, Fred Norman, *La.*
Winthrope, Paul W., *Canada.*
Wipf, Jacob H., *S. D.*

*Matriculated, but not in attendance.

†Did not complete course.

RECAPITULATION OF STUDENTS BY STATES OR COUNTRIES.

States or Countries	Seniors	Juniors	Freshmen	Specials	Total
Alabama	1		1		2
Arkansas	2		1		3
Australia	2	4	2	1	9
Austria				2	2
British Columbia	2				2
California	1		1		2
Canada	15	2	8		25
Colorado	1	1			2
Connecticut			1		1
Germany	2	1			3
Idaho	1	1	1		3
Illinois	65	24	50		139
Indiana	8	3	4		15
Indian Ty.		1			1
Iowa	36	13	7		56
Kansas	4				4
Louisiana	2	1	1		4
Massachusetts	1				1
Michigan	20	4	7		31
Minnesota	14	9	8		31
Mississippi		1			1
Missouri	4	1			5
Montana		2	1		3
Nebraska	6	2	2		10
New York	2	1	1		4
North Dakota	3	1	1		5
Ohio	3	3	7		13
Oregon	1				1
Pennsylvania	1		1	1	3
South Dakota	9	2	4		15
Tennessee	2	1	1		4
Texas	2				2
Utah	2	2	1		5
Washington	9	1			10
Wisconsin	21	8	12		41
Total	242	89	123	4	458

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The Secretary, Northwestern University Building, Chicago.

The Dental School,
The Secretary, Northwestern University Building, Chicago.

School of Music,
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Professor Arthur H. Wilde, Ph.D., Acting Principal.

Grand Prairie Seminary, Onarga, Ill.,
Reverend Frank G. Barnes, D. D., President.

Elgin Academy, Elgin, Ill.,
Mr. George E. Sleight, A. B., Principal.

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Reverend Nels E. Simonsen, D. D., Principal.

Swedish Theological School,
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For information concerning the *School of Oratory*, address Professor Robert L. Cumnock, L. H. D., Director, Evanston, Ill.

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